United States Environmental Protection Agency
Office of Air and Radiation
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PREVENTION OF SIGNIFICANT DETERIORATION, NONATTAINMENT NEW SOURCE REVIEW, AND NEW SOURCE PERFORMANCE STANDARDS: EMISSIONS TEST FOR ELECTRIC GENERATING UNITS

COMMENTS FILED ON BEHALF OF THE PROVINCE OF ONTARIO

by

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Introduction and Overview

The Province of Ontario welcomes this opportunity to file comments on changes to the New Source Review program that were proposed by Environmental Protection Agency Administrator Stephen L. Johnson on October 20, 2005. These comments are submitted on behalf of the Province of Ontario and Premier Dalton McGuinty by Minister of the Environment Laurel Broten and Attorney General Michael Bryant.

Ontario has carefully reviewed EPA's October 20th proposal, and believes that the changes EPA proposes to make to the New Source Review program will have an adverse effect on the health and welfare of citizens of Ontario, as well as on people in the United States who live downwind of major coal-fired power plants. New Source Review has been a key component of the U.S. Clean Air Act since the adoption of amendments to the law nearly three decades ago. Enforcement of NSR has led to the elimination of over 650,000 tons of air pollution in the United States in recent years, with the prospect of additional reductions of over 2.3 million tons in the near term, according to EPA's own analysis in September 2004. Since that time, enforcement of NSR has led to additional reductions of over 245,000 tons of air pollution. We believe that the changes EPA is proposing will emasculate a key enforcement tool that has been used very effectively by prior EPA administrators and by states in our common airshed that are committed to environmental leadership.

Each year, transboundary air pollution generated by sources in the United States causes thousands of premature deaths in Ontario, requires tens of thousands of our citizens to visit our hospitals for respiratory illnesses, and costs the Province billions of dollars in environmental and health damages. Much of the pollution is emitted from coal-fired electricity generating units located in the United States. Ontario has identified more than 600 units located in 12 states near the U.S.-Canada border that have no controls on their emissions, or have inadequate controls. These plants pump more than 6 million tons of pollution into the U.S.-Ontario airshed each year. Hundreds of these units have been operating for 50 years or more. Effective environmental leadership is required to develop a comprehensive plan to clean up these facilities. Regretfully, EPA has not yet shown the necessary leadership or provided the plan to deal with these major sources of pollution that degrade our airshed. Indeed, the proposed rule represents a major step in the wrong direction.

By contrast, Ontario has taken steps to dramatically reduce air pollution emissions in the Province, particularly from coal-fired electricity generating plants. Shortly after Premier McGuinty was elected in October 2003, the Premier articulated his vision of cleaner air for Ontarians, implemented by replacing old coal-fired power plants and adopting new pollution control technologies. The Premier's administration has embarked on a series of major initiatives to sharply cut air pollution emissions from major stationary sources. The centerpiece of the McGuinty government's approach is the replacement of all coal-fired power plants in the Province over the next four years with new, cleaner generation sources. The coal-fired Lakeview Generating Station was closed in April 2005. Over the next four years, the Thunder Bay, Atitkokan, Lambton and Nanticoke Generating Stations will be closed, and the last of these facilities will be closed in 2009. By January 2010, no coal-fired power plants will be operating in Ontario. As a result of Premier McGuinty's environmental leadership, more than 165,000 tons of emissions will be eliminated from the power generation sector, and overall levels of

nitrogen oxide and sulphur dioxide emissions will be reduced by 12% and 24% respectively. Ontario's coal replacement will improve air quality within the Province, and will have a positive impact on air quality in our neighbouring border states and downwind states. Further, Ontario's coal plant replacement is the single largest greenhouse gas reduction initiative in Canada, removing over 33 million tons of carbon dioxide per year.

The McGuinty government has also taken a series of other important environmental measures to reduce air pollution in Ontario. It has put in place new and updated standards for toxic air pollutants. It has set aggressive limits for the largest industrial sources of smog causing emissions in the Province. It has required that ethanol make up 5 per cent of the gasoline in Ontario by 2007. It has committed to enhance the Province's already comprehensive vehicle inspection and maintenance program. It has committed to reduce the government's own energy use by at least 10 per cent by 2007. It has required that Ontario electricity suppliers obtain at least 5 per cent of their electricity from new, clean renewable sources by 2007, and 10 per cent by 2010. It is also investing heavily in public transportation, and protecting the greenbelt in Southern Ontario from urban sprawl, thereby ensuring that development and growth occur in an environmentally sound manner.

Taken together, the environmental accomplishments and future accomplishments by Ontario demonstrate the Province's resolve to improving air quality in the Province and beyond its borders. These initiatives are reflective of the Premier's vision of Ontarians enjoying cleaner air, developing green power generating capacity and investing in alternatives to coal. This vision has its grounding in the human cost of air pollution—too many of Ontario's children are rushed to hospital gasping for breath on smog advisory days. The McGuinty government is determined to continue to speak and act forcefully for cleaner air on their behalf.

Because Ontario is located directly downwind of air pollution sources in midwestern states in the U.S., the Province cannot control air pollution on its own, and cannot remediate the human costs of that pollution on its own. More than half of all air pollution in Ontario comes from sources in the United States -- at some Ontario locations, the percentage of polluted air from U.S. sources exceeds 90%. Thus, Ontario must depend upon the United States to do its share in controlling emissions. As these comments will show, EPA is not doing all it can to control emissions, especially from coal-fired power plants located in the Midwest. States in the Northeast and the Mid-Atlantic have sought to make progress in this area, but their efforts have little chance of succeeding without support at the federal level.

EPA's failure to control emissions adequately is taking a major toll on public health and welfare in Ontario. Recent studies have shown that air pollution causes nearly $10 billion (CDN) in damages to Ontario's economy each year. Nearly two thirds of this figure, or $6.6 billion, is attributable to the health costs of polluted air. Air pollution causes more than 5,000 premature deaths in Ontario each year, and some 60,000 emergency room visits are due to air pollution. The year 2005 was a record year for air pollution in Ontario, with 53 days of smog advisories.

The overwhelming role that transboundary air pollution plays in Ontario can be demonstrated by considering the problem from three perspectives. First, if Ontario were to shut down all of its own stationary and mobile sources of air pollution tomorrow, pollution from U.S.

sources would still overwhelm receptors in Ontario and result in exceedances for ground-level ozone, particularly at measuring stations that are located near the U.S. border. Second, if transboundary air pollution coming from U.S. sources were taken out of the equation, almost all of the exceedances experienced by Ontario would be eliminated. Third, modelling performed by Ontario scientists predicts that, even after Ontario closes every coal-fired power plant in the Province, air quality in Ontario will not meet the Canada-Wide Standard for ozone in 2010 without significant additional reductions in transboundary pollution from the United States.

What this demonstrates is that substantial reductions are required on the U.S. side – especially from the electric utility sector – if the adverse health and environmental effects that Ontarians endure each year from transboundary air pollution are to be avoided. EPA needs to strengthen – and vigorously enforce – the NSR rules. Unfortunately, EPA is proposing to do just the opposite. Ontario requests that EPA reconsider its approach, reverse course, and take strong and immediate action to reduce transboundary pollution before it takes an even further toll on the health and welfare of the 12 million people who live in Ontario.

Ontario's comments are divided into four parts. Part I reviews health and environmental effects that are directly attributable to pollution coming from the United States, especially from coal-fired power plants located in the Midwest. Part II describes the reductions achieved to date by Ontario's clean air program, and the Province's actions to achieve further significant reductions. This part also shows why Ontario's control program, no matter how comprehensive, cannot on its own effectively protect air quality in the Province. Part III assesses the impact of EPA's proposed changes in NSR, and shows how electric generating sources in the U.S. will continue to endanger Ontario unless the proposal is significantly revised. It also shows why Ontario cannot rely on other EPA programs, such as the Clean Air Interstate Rule, to achieve the needed reductions. Finally, Part IV reviews the legal justification for the proposed rule change, and explains why Ontario believes the proposed changes are inconsistent with the legislative history of the Clean Air Act and recent judicial rulings interpreting the law.

I. Ontario's Interest in Proposed Changes to New Source Review: US-Generated Emissions Endanger Public Health and Welfare in Ontario.

Ontario is the largest of Canada's ten provinces in population, and covers an extensive geographic area of greater than 400,000 square miles. Its territory stretches from New York State in the east to Minnesota in the west, and spans the coastlines of four of the five Great Lakes (Lake Michigan lies entirely within the United States). Ontario's citizens and its businesses account for 40% of Canada's total economic output. In 2004, the trading volume between Ontario and the United States totaled more than a quarter of a trillion dollars. Ontario thus is the third largest trading partner of the United States; only the countries of Canada and Mexico have larger trading volumes with the United States.

Ontario is located in the Great Lakes basin, and lies downwind of air pollution generated in the United States, particularly from sources located in the American Midwest. Pollutants from electric generating units (EGUs) in the midwestern states are transported on the prevailing winds over considerable distances to Ontario and onwards to its neighbouring provinces of Quebec, Nova Scotia and New Brunswick. These emissions account for more than half of the total amounts of smog (ozone and particulate matter) in Ontario.[1]

Although Ontario has a comprehensive air pollution control program, and has taken action to replace coal-fired plants in Ontario, the Province's program cannot succeed unless significant pollution controls are imposed on plants located in the United States. Despite significant decreases in emissions both in Canada and in the Province of Ontario between 1990 and 2003, the Canadian seasonal average concentration of ozone actually increased 16% during this period. In 2003, the highest seasonal average ground-level ozone concentrations for all of Canada were all recorded at monitoring stations in Southern Ontario, where ozone concentrations have grown at the fastest rate in Canada.[2]

Unfortunately, the changes EPA proposes to make in the NSR program are likely to exacerbate the transboundary pollution problems experienced in the Province by allowing a significant number of EGUs located in midwestern states to avoid controls that could otherwise be placed on their emissions.

Health and environmental data assembled by experts in the United States and Canada provide a strong basis for the Province's concern. Two reports released in June 2005 prior to the Shared Air Summit held in Toronto set out the impact of transboundary air pollution in Ontario. The first report, entitled *Transboundary Air Pollution in Ontario*, prepared by professional staff, engineers and consultants of the Province's Ministry of the Environment, confirmed the magnitude and the impact of the transboundary contribution to pollution in the Ontario airshed.[3] The report entitled *The Illness Costs of Air Pollution* prepared by the Ontario Medical Association, quantified the costs of this pollution in terms of its health effects.[4]

Key findings from these two reports include the following:

- Total environmental and health damages in Ontario associated with air pollution are estimated to approach $9.6 billion[5] each year.

- Exposure to air pollution such as fine particulate matter and ozone resulted in an estimated 5,800 premature deaths[6] in the Province of Ontario in 2005. The Ontario Medical Association estimated that in 2005, nearly 17,000 Ontarians were admitted to hospitals and nearly 60,000 made emergency room visits for air pollution-related reasons. The health damages costs associated with air pollution in Ontario are estimated at over $6.6 billion in 2005.[7]

- Portions of Ontario receive as much as 77% of their total sulphur and nitrogen deposition from emission sources located in the United States.[8]

- At many Ontario locations, the U.S. contribution (excluding background) to ozone levels is as much as 90%.[9] As a result, ground-level ozone concentrations exceeded air pollution standards at 16 of 17 ozone measuring locations in Ontario during 2001-2003.

- The adverse health impacts in Ontario each year from transboundary pollution include more than 2,700 premature deaths, almost 12,000 hospital admissions, almost 14,000 emergency room visits, and health damages of more than $3.7 billion. [10]

These health-related impacts are not the only costs related to air pollution in Ontario. Air pollution also has a serious impact on public welfare in Ontario. Seven separate areas of environmental damage have been identified by the Province[11]:

- *Loss of agricultural productivity*—annual ozone impacts from degraded soil conditions and reduced crop yields total more than $200 million. The share of this damage attributable to transboundary air pollution is $165 million.

- *Loss of forest productivity*—annual ozone and soil acidification impact on forests, foliage and forest soil conditions is $77 million, with $51 million of these damages attributable to transboundary air pollution.

- *Damage to buildings and structures*—annual damage to the exposed surfaces and materials of Ontario buildings and structures from acid fractions of sulphur dioxide (SO_2), particulate matter (PM) and ozone is $974 million, with $310 million of these damages attributable to transboundary air pollution.

- *Visibility impairment*—annual visibility impacts from PM, ozone and smog have been estimated at $1.3 billion, with $779 million of these impacts attributable to transboundary air pollution.

- *Soiling of materials*—annual damage to household and other sensitive materials impacted by PM amounts to $426 million, of which $238 million is attributable to transboundary air pollution.

- *Damage to aquatic ecosystems by acidification*—atmospheric deposition of sulphur into Ontario's aquatic ecosystems has been impairing these ecosystems for many years. Acid rain has degraded water bodies, watersheds, and sportfish productivity in Ontario. Many lakes in Ontario do not meet the relative acidity (pH) conditions necessary for fish and other aquatic biota to survive. Algae, invertebrates and waterbird food chains in Ontario continue to show acidification effects.[12]

- *Eutrophication*—the contribution of nitrogen oxide (NOx) deposition to nitrogen loading and eutrophication of Ontario aquatic ecosystems is also of concern, and increased nitrogen levels have produced toxic algal blooms in Ontario's estuarine waters.[13]

Ontario's conclusions about the health and public impacts of air pollution have been reinforced by EPA's own findings. In materials prepared by EPA in 2002 to support the proposed Clear Skies legislation, the agency recognized that SO_2, NOx, and mercury emissions from power generation plants result in (a) premature mortality and serious respiratory illnesses (asthma, chronic bronchitis); (b) acidification of surface waters, leading to a reduction in biodiversity and to fish kills; (c) damage to forests and forest ecosystems through direct impacts on leaves and needles, and by soil acidification and depletion of soil nutrients; (d) eutrophication, leading to fish and shellfish kills; (e) decreased visibility as a consequence of pollution-induced

regional haze; and (f) increased weathering of monuments, buildings and other stone and metal structures.[14]

In its most recent statements regarding PM,[15] EPA summarized health effects related to PM exposure as follows:

> [E]xposure to various PM indicators is associated with a broad range of cardiovascular and respiratory health endpoints. Newer studies report associations between short-term exposure to various indicators of PM and cardiopulmonary mortality, hospitalization or emergency department visits, and respiratory symptoms. In addition, there is now evidence for associations with cardiovascular health outcomes, such as myocardial infarction or physiological changes such as C-reactive protein increases. There is also a broader range of respiratory health effects associated with exposure to various indicators of PM than those previously documented. These effects include visits to physicians or clinics for treatment of respiratory illnesses.

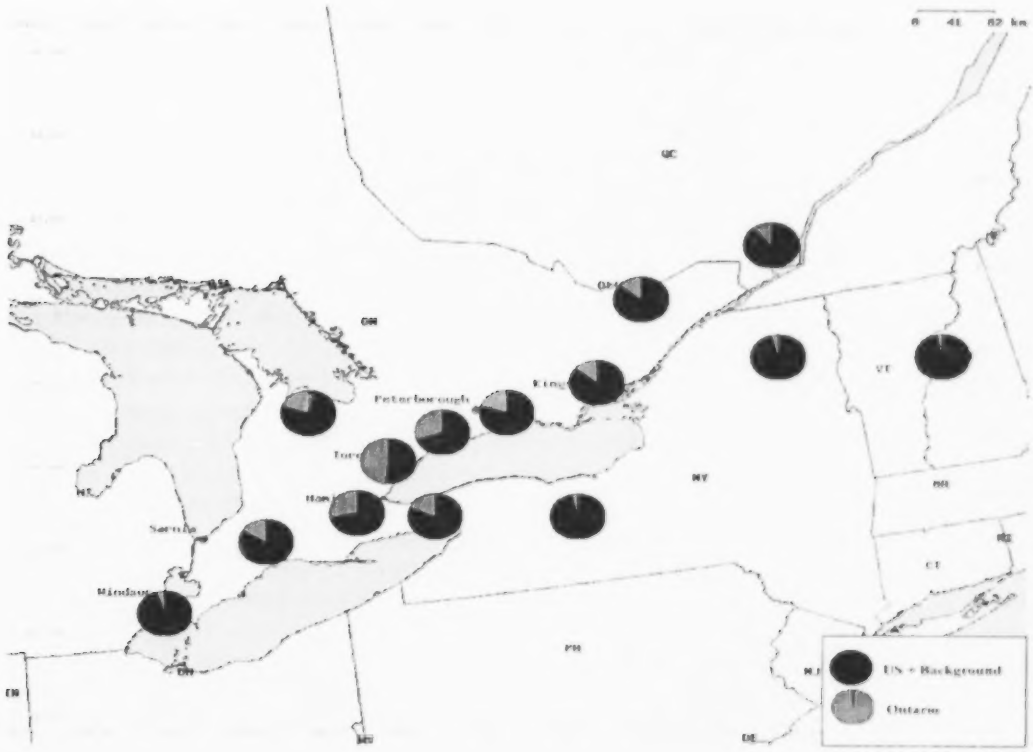
Further confirmation of these impacts is contained in the *2004 Progress Report*[16] prepared by the bilateral Air Quality Committee pursuant to the Canada-United States Air Quality Agreement, that details the effects of transboundary air pollution. The report found that long-term exposure to PM and sulphates causes cardiovascular and pulmonary changes contributing to disease and premature death. In 2004, the International Joint Commission (IJC), the bilateral body entrusted with studying and making recommendations on transboundary air pollution between the U.S. and Canada, issued the *Summary of Critical Air Quality Issues in the Transboundary Region.* This report found that SO_2-related acidity in 67% of Canadian lakes studied since the 1980's had either remained static or worsened.[17]

Relative Contributions of Air Emissions in the Joint U.S.-Ontario Airshed

In June 2005, Premier McGuinty hosted the Shared Air Summit in Toronto to address transboundary air pollution and its impact on health, communities and the environment. The Ontario 2005 report on transboundary air pollution, released prior to the Summit, showed that the majority of NOx, PM and ozone in Ontario originates in the United States. Analysis by Ontario scientists indicates that in 1999-2000, the sources of 94% of the NOx pollution within the U.S.-Ontario airshed (including emissions from point, area and mobile sources) were located in the U.S.; only 6% of the pollutants originated in Ontario.[18]

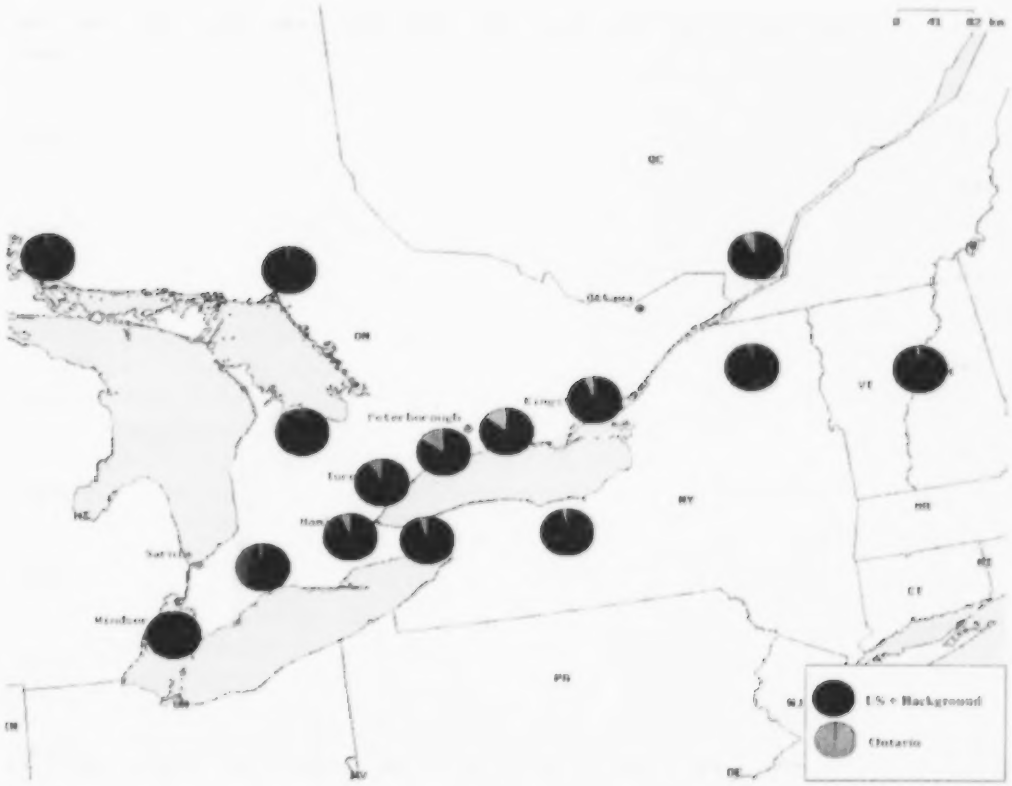
Similarly, analysis of air pollution data performed by Ontario scientists demonstrates that in most Ontario communities, more than 50% of the total $PM_{2.5}$ loadings originated in the U.S.[19] The relative contribution of $PM_{2.5}$ sources in the U.S. and Ontario to the Ontario airshed is presented in Figure 1 below.

Figure 1: Transboundary vs. Ontario Contribution for $PM_{2.5}$ on High Concentration Days during 1998 Spring/Summer Season (Source: Ontario Ministry of the Environment)



A comparable review of ozone data shows that Ontario's own ozone contribution is at most 16% of the total ozone loadings in Ontario.[20] The results of the modelling are presented in Figure 2 below.

Figure 2: Transboundary vs. Ontario Contribution for Ozone on High Concentration Days during 1998 Spring/Summer Season (Source: Ontario Ministry of the Environment)[21]



Ontario monitors ozone at numerous locations within the Province, and has recorded the number of exceedances of the Canada-Wide-Standard (CWS) adopted in Ontario of 65 ppb averaged over eight hours. Analysis of the data on exceedances and the sources of ozone present in the Ontario airshed shows that ozone sources outside the Province are a frequent and growing cause of the CWS ozone exceedances. Based on the ozone data compiled and analyzed by Ontario scientists,[22] U.S. sources of ozone are so significant that:

- If Ontario were to shut down all of its own stationary and mobile sources of air pollution tomorrow, pollution from U.S. sources would still result in exceedances of the CWS for ozone in Ontario.

- If transboundary air pollution coming from U.S. sources stopped tomorrow, virtually all of the exceedances experienced by Ontario would be eliminated.

In addition, Ontario's scientists have estimated that air quality in Ontario will not be able to meet the CWS for ozone in 2010 due to the impacts of transboundary pollution from the

U.S.—even after Ontario replaces every coal-fired power plant in the Province with cleaner generation.[23]

As can be seen from the above figures, emissions from coal-fired electric generating power plants in the U.S. play a major role in the overall quality of the air in Ontario. The following table provides comparative emissions data for U.S. and Ontario power plants. The U.S. emissions data is drawn from EPA's database for the Clean Air Interstate Rule;[24] Ontario's emissions data is drawn from data compiled by Ontario Power Generation for the five coal-fired plants.[25] Table 1 shows a significant disparity in contributions for NOx and SO_2 from Ontario and midwestern states with similar populations.

Table 1: Comparison of Ontario and U.S. NOx and SO_2 Emissions-Per Capita Emissions (Source: Ontario Ministry of Environment)[26]

Province/State	Population in 2003	EGU NOx emissions in 2003 (thousand tons/year)[27]	Per capita NOx emissions (pounds/person/ year)	EGU SO_2 emissions in 2003 (thousand tons/year)[28]	Per capita SO_2 emissions pounds/person/ year)
Ontario	12,259,600[29]	62.6	10.21	169.5	27.65
Illinois	12,653,544	145.9	23.06	365.3	57.74
Michigan	10,079,985	118.8	23.57	350.8	69.60
Pennsylvania	12,365,455	174.3	28.19	967.2	156.44
Ohio	11,435,798	355.2	62.12	1,175.0	205.50

These numbers clearly indicate that Ontario's SO_2 and NOx emissions from the electric generating sector have been relatively minor when measured against the total emissions from four U.S. states of similar size. Measured on a per capita basis, power plant emissions in Ontario were significantly less than the emissions from these U.S. states. The table also shows that SO_2 and NOx emissions from coal-fired power plant sources in the four states significantly exceeded Ontario's power plant SO_2 and NOx emissions in absolute terms.

This disparity is shown graphically in the following Figures 3 and 4, which show the relative size and geographic location of SO_2 and NOx emissions from power plants in the U.S. and Canada.

Figure 3: NOx Emissions from Power Plant Sources in Eastern U.S. and Southern Ontario
(Source: EPA and Ontario Emission Inventories 1995, 1999 and 2001)

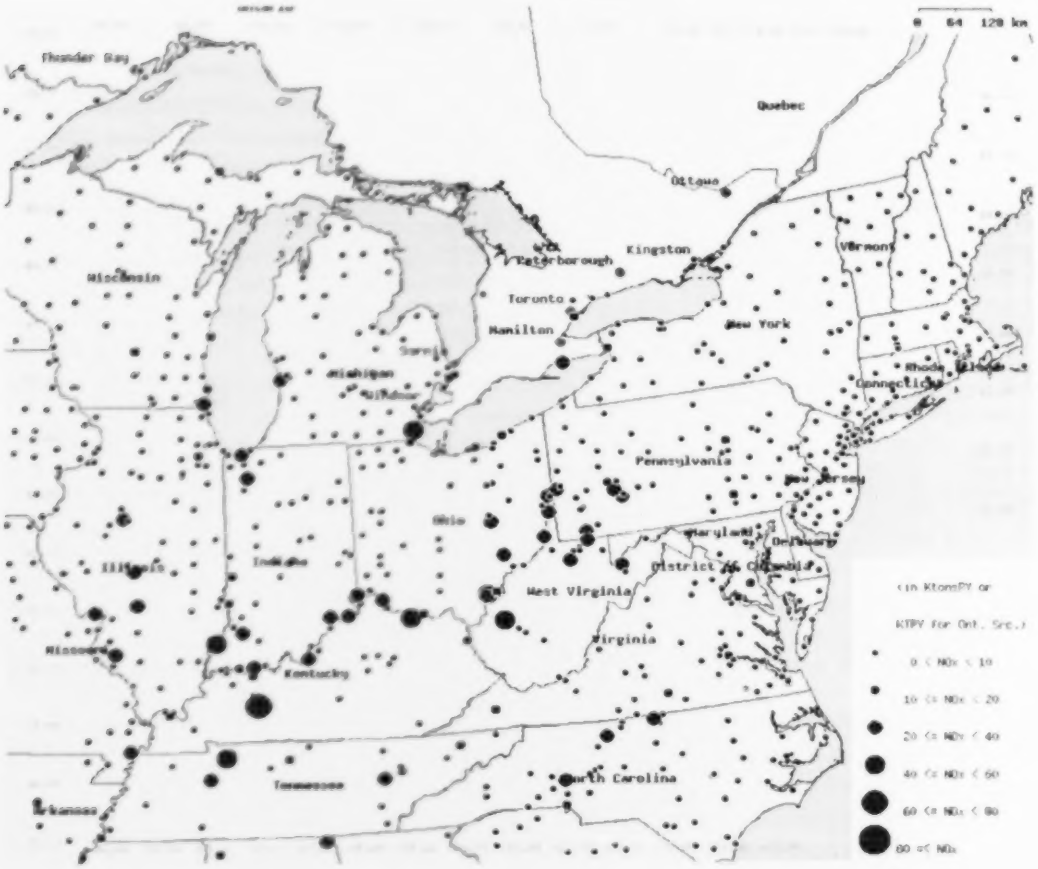
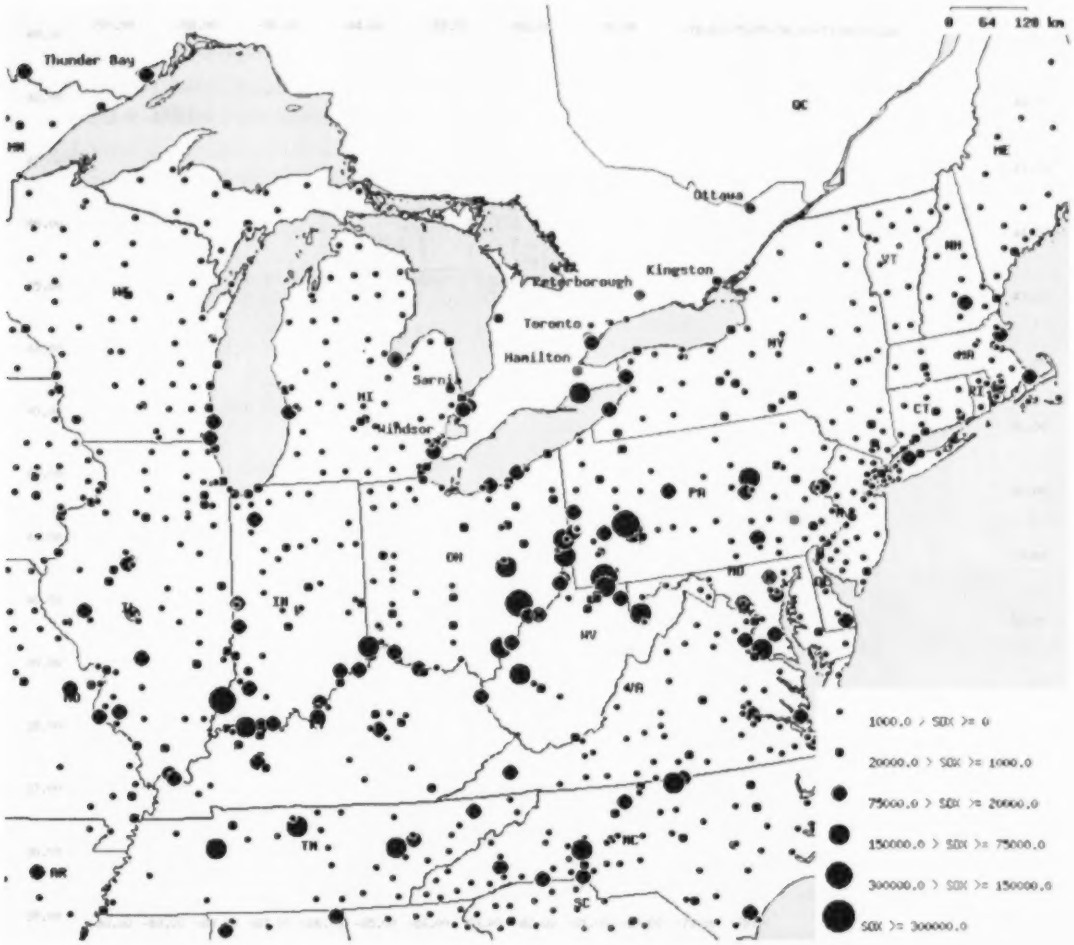
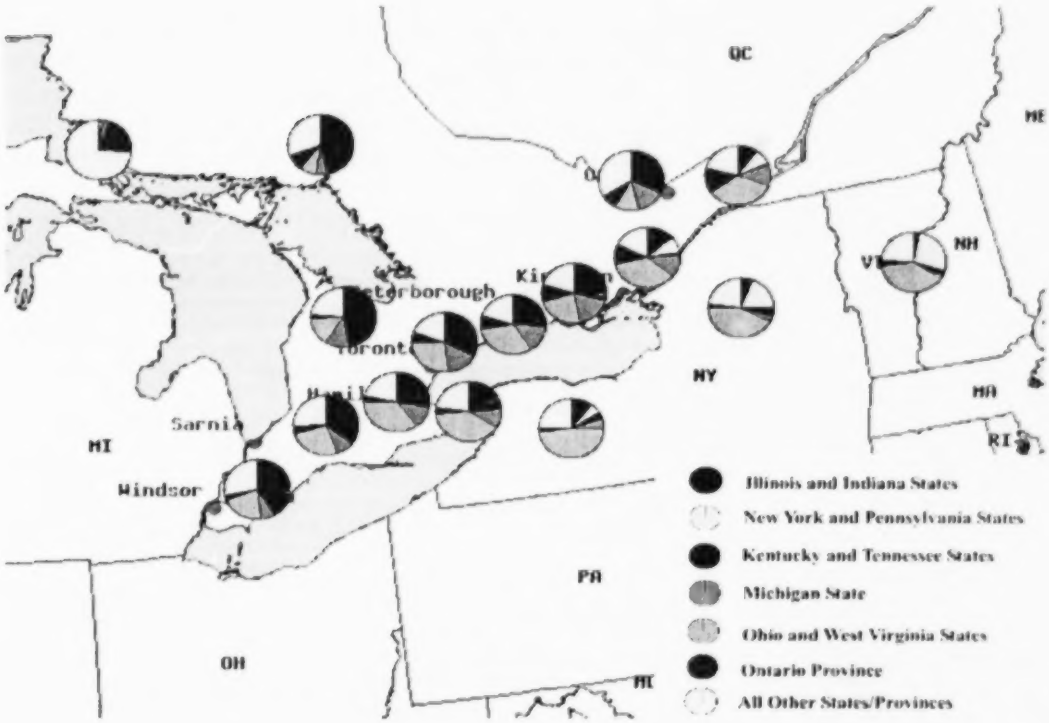


Figure 4: Comparative Sulphur Dioxide Emissions from Power Plants (Source: EPA 1995 Emission Inventories with 2001 Updates, Ontario 1999 Emission Inventories)



Another way to illustrate the disparity is to look at the relative contributions of U.S. and Ontario emissions to ambient air pollution levels in Ontario. As presented in Figure 5 below, modelling undertaken by Ontario scientists shows that the overwhelming contribution to ambient sulphate levels at many sites in Ontario is coming from U.S. sources.[30] Figure 5 shows the breakdown of relative contributions from selected states or pairs of states in the U.S.

Figure 5: Regional Contribution to Sulphate at Selected Sites for Predicted Average on July 16, 1998 (Source: Ontario Ministry of Environment)



In addition to Ontario, states located in the Northeast and the Mid-Atlantic are also very concerned about the impact of emissions from coal-fired power plants in the Midwest. The Ozone Transport Commission (OTC), which is comprised of 12 states and the District of Columbia, has called for further substantial reductions in coal-fired power plant emissions as a means of reducing ozone transport into OTC states. Recent modeling conducted by the OTC shows that air quality standards in the receiving states would still likely be violated by incoming pollution from the Midwest even if all manufactured emissions from the OTC states were eliminated.[31]

Recent action by New York and Pennsylvania illustrates the aggressive action being undertaken by the OTC states. Early in 2005, New York reached agreement with its utilities to reduce SO_2 emissions by 123,000 tons and NOx emissions by 18.000 tons.[32] Ontario's Minister of the Environment and the Commissioner of the New York Department of Environmental Conservation had previously signed a Memorandum of Agreement entitled "Combating the Effects of Transboundary Air Pollution" which has led to collaborative scientific work between the two jurisdictions. In Pennsylvania, a program was recently launched by Gov. Ed Rendell to encourage older coal-fired plants in the state to convert to new coal gasification technology to reduce power plant emissions.[33] For utilities that are resisting investment in new technology, the Pennsylvania Department of Environmental Protection earlier this year led a successful effort to

force those utilities to spend $400 million to install modern scrubbers.[34] Clearly much work is being done by individual U.S. states on their own, or in collaboration with Ontario, to control air pollution from U.S. power plants.

Despite these efforts, coal-fired power plants in the U.S. continue to have a dominant effect on the level of air pollution in North America. The 2004 Commission for Environmental Cooperation (CEC) report entitled *North American Power Plant Emissions* noted the wide disparity between power plant NOx emissions in the U.S., Canada and Mexico. In 2002, according to the CEC report, out of the 4.5 million tons of NOx emitted by power plants in these three countries, emissions from plants located in the U.S. constituted approximately 89% of that total. Furthermore, the CEC concluded that 10% of those plants produced more than 50% of total U.S. NOx emissions in 2002.[35]

For SO_2 emissions, the CEC found that out of the 11.4 million tons of SO_2 emitted by power plants in the three countries, U.S. power plant emissions constituted approximately 81% of the total. The CEC noted that 242 U.S. power plants produce 90% of the total SO_2 emissions from U.S. power plants, and that none of the top 17 highest emitting SO_2 power plants in the U.S. have SO_2 scrubbers installed.[36]

Data also show that U.S. power plants emit a large share of the total SO_2 and NOx emissions in the U.S. A recent Congressional Research Service report[37] noted that in 2003, U.S. power plants accounted for nearly 11 million tons of SO_2, approximately 69% of total U.S. emissions. U.S. power plants emitted 4.5 million tons of NOx, approximately 22% of all U.S. NOx emissions. The report also pointed out that when a utility blackout occurred in the U.S Midwest in August 2003, U.S. researchers found that ambient levels of SO_2 and ozone were 90% and 50% lower respectively in the blacked-out areas.[38] This example dramatically illustrates the impact of U.S. power plants on ambient air quality, and highlights yet again the role played by U.S. power plants in contaminating their own airshed and creating airborne pollutants that can be transported long distances to the Ontario airshed.

In light of the wide disparity in air pollution emissions from coal-fired power plants in Ontario and the U.S., Ontario has a vital interest in convincing EPA and the U.S. states to take additional action to control sources that contribute so significantly to pollution loadings in the Province. As the next part shows, Ontario also recognizes the need to have its own house in order, and has taken the necessary steps to reduce sources of air pollution in the Province.

II. Ontario's Clean Air Program

Air pollution control in Canada is a shared responsibility between the federal government and the provinces. Federal, provincial, and territorial governments have formed a partnership under the framework of the Canadian Council of Ministers of the Environment (CCME)[39] to address environmental protection and health risk issues related to air pollution. The CCME uses a cooperative approach in order to develop and implement consistent environmental measures in those officials' jurisdictions. The CCME adopts a "Canada-Wide Standard" (CWS) for a particular pollutant, e.g., particulate matter, ground-level ozone, that is implemented by the appropriate Canadian governmental entity (federal, provincial or territorial). CWSs are developed using a firm scientific foundation and a risk-based approach. CWS development and

implementation also considers socio-economic factors and issues of technical feasibility. Proposed CWSs are presented to the Canadian provincial and territorial Ministers and generally contain a numeric limit (e.g. ambient, discharge, or product standard), a timetable for attainment, and a framework for monitoring progress and reporting. Each standard is normally accompanied by a list of preliminary actions to attain the standard, and a protocol for reporting to the Canadian public on progress achieved.[40]

For particulate matter and ozone, the CCME has recognized there is no apparent lower threshold for the effects of these pollutants on human health, so the CWS for PM and ozone is designed to minimize the risks of these pollutants to human health and the environment.[41] The CWS for $PM_{2.5}$ is 30 micrograms per cubic meter over a 24-hour averaging time, and the CWS for ground-level ozone is 65 parts per billion over eight hours.[42] The CCME has also established CWS for mercury, dioxins and furans, and benzene and proposed a standard for mercury emissions from coal-fired power plants. For these plants, Ontario has committed to meet a provincial cap of zero kilograms of mercury per/year in 2010 from current estimated levels of 495 kilograms/year, a substantial benefit from Ontario's commitment to replace the Province's coal-fired plants.[43]

The Canadian federal government has undertaken a series of legislative and administrative actions to achieve national objectives for air quality and air pollution control. Canada's 10-year Clean Air Agenda focuses upon reducing emissions from the transportation sector and major industrial sources. A number of federal programs have been put in place to reduce stationary and mobile sources of air pollution. For example, the Canadian federal Cleaner Vehicle Engine and Fuel Program limits the amount of sulphur in gasoline to an average of 30 ppm; sulphur in diesel will be limited to 15 mg/kg starting next year.[44] A VOC reduction program for commercial and consumer products has been initiated. Over the last five years, the Canadian federal government has invested more than $210 million on the Clean Air Agenda.[45]

As a result of the combination of efforts by Ontario, the CCME, and the Canadian federal government, emission levels of three major smog-producing pollutants (SO_2, NOx and VOCs) have declined substantially in Ontario over the past 15 years. The Ontario Ministry of Environment has recently updated its estimates of Ontario emissions, and has determined that following reductions have been achieved under the Ontario air pollution control regime[46]:

- SO_2 emissions from all sources in Ontario have been reduced by 572,000 tons, from 1,269,000 tons in 1990 to 697,000 tons in 2005, an overall reduction of 45%, with the majority of reductions from point sources.[47]

- NOx emissions have been reduced at point sources in Ontario by 49,000 tons, from 244,000 tons in 1990 to 195,000 tons in 2005. NOx emissions from transportation sources in Ontario have been reduced by 144,000 tons, from 524,000 tons in 1990 to 379,000 tons in 2005. Overall, the annual NOx emissions in Ontario have been reduced from 1990 to 2005 by 193,000 tons, a reduction of 25%.

- VOC emissions from point sources in Ontario have been reduced by 66,000 tons, from 166,000 tons in 1990 to 98,000 tons in 2005. VOC emissions from area sources in Ontario have been reduced by 56,000 tons from 1990 to 2005. VOC emissions

from mobile sources in Ontario have been reduced by 141,000 tons from 1990 to 2005. Overall, the annual VOC emissions in Ontario have been reduced from 1990 to 2005 by 262,000 tons, a reduction of 28%.

Thus, Ontario has achieved reductions in its yearly emissions of smog-causing pollutants by more than 1 million tons since 1990. These reductions were achieved notwithstanding the fact that during the same period Ontario experienced 48% growth in real GDP and 20% population growth.[48]

The McGuinty government has embarked on an ambitious effort to build on this record of progress and to significantly expand the Province's pollution control efforts. Ontario's Clean Air Action Plan is designed to achieve significant additional reductions in emissions of the major smog-causing pollutants—SO_2, NOx, $PM_{2.5}$ and VOCs. The Plan addresses pollutants by targeting the electricity generation, transportation, residential, and manufacturing sectors.[49]

Specific regulatory initiatives of the McGuinty government include the following:

- The coal-fired Lakeview Generating Station in Ontario was closed in April 2005.[50] Over the next four years, the Thunder Bay, Atitkokan, Lambton and Nanticoke Generating Stations will be replaced, and the last of these in 2009. The five plants emitted 126,000 tons of SO_2 and 43,000 tons of NOx in 2004.[51] These plants accounted for about 24% of SO_2 and 12% of NOx emissions in Ontario, and over 7,500 megawatts of power. This capacity will be replaced by cleaner, more diversified and renewable power sources.[52] The McGuinty government's replacement of coal-fired generation by 2009 is currently the single largest greenhouse gas reduction initiative in Canada. Coal replacement will reduce Ontario's greenhouse gas emissions by up to 33 million tons of CO_2 a year - comparable to taking almost 7 million cars off the road.[53] By 2010 no coal-fired power plants will be operating in Ontario.

- Ontario's coal-fired power plants will be replaced with more than 10,000 megawatts of power – or more than 2500 megawatts above the amount generated by the coal-fired power plants – using a combination of gas-fired generating power, renewable power, hydroelectric power, and refurbishment of nuclear facilities.[54] Ontario also plans to purchase clean energy supply from its neighbouring provinces. The Province has signed a joint Clean Energy Transfer Initiative with the Province of Manitoba that will eventually provide an additional 1500 MW of clean energy. It is also working with the Provinces of Quebec and Newfoundland to develop an additional 2000 MW on the Lower Churchill River. Ontario will receive one third of the hydropower generated by this project, or more than 900 MW of additional power. As a result, Ontario will be replacing the electricity generated by coal-fired power plants in the Province with electricity generated entirely by clean energy sources.

- In 2005, the McGuinty government implemented new and updated air standards for 40 pollutants to protect Ontario communities from the impacts of air pollution. The new standards are based on the best scientific information available and are set at

levels that safeguard the natural environment and protect sensitive populations such as children and the elderly.[55]

- In 2005, the McGuinty government implemented the Industry Emission Reduction Plan, establishing specific SO_2 and NOx caps for industrial point sources in Ontario.[56]

- Ontario has adopted a comprehensive vehicle emissions control program to reduce pollution from vehicles, the Province's largest single source of smog-causing pollutants. The program, known as *Drive Clean*,[57] applies to light-duty and heavy-duty non-diesel vehicles registered in southern Ontario and to heavy duty diesel vehicles registered anywhere in the Province.[58] *Drive Clean* emission standards for light-duty vehicles were tightened by 11.5% in 2003 and a further 11.5% in 2005. Emissions standards for heavy-duty vehicles were tightened in 2004 and again in 2005, and are now among the most stringent in North America. An independent analysis of *Drive Clean* indicates that the program reduced smog-causing vehicle emissions from light-duty vehicles by 89,500 tons from 1999 to 2003. The program has resulted in reductions of over 760,000 tons of carbon monoxide and over 110,000 tons of carbon dioxide. Particulate matter from diesel heavy-duty vehicles has been reduced by about 1,200 tons from 2000 to 2002. The McGuinty government is now consulting with the Ontario public on additional improvements to further enhance the program's effectiveness.

- Ontario is providing various clean air incentives in an effort to encourage individual users to minimize emissions. For example, Ontario provides an exemption to the gasoline tax (14.3 cents per litre) for users of ethanol, natural gas and bio-diesel based fuels. By January 1, 2007, all gasoline sold in Ontario must contain, on average, at least 5% ethanol by volume.[59] Also, Ontario is encouraging the production of cleaner alternative energy sources by providing a 100% corporate income tax write-off and a capital tax exemption for certain assets that are used to generate electricity from clean, alternative or renewable energy sources. Ontario is also providing a sales tax rebate on building materials purchased between November 25, 2002 and January 1, 2008 that are incorporated into facilities that generate electricity from clean, alternative energy sources.

- Ontario's efforts on renewable energy[60] are significant with renewable targets of 5% capacity, or 1350 megawatts by 2007, and 10% of capacity or 2700 megawatts by 2010. To date, the Province has entered into agreements to purchase power from 19 new renewable energy projects, including 3 waterpower projects, 3 landfill gas and biogas projects and 13 wind farms for a total of 1,370 MW of clean, renewable electricity – enough to power 350,000 homes.

- The McGuinty government has set a clear provincial conservation target — to reduce peak electricity demand in the Province by five per cent by 2007.[61] This initiative alone will reduce greenhouse gas emissions by more than 1 million tons per year in the Province.

- The Ontario government will invest, through a dedicated portion of the provincial gas tax, more than $1 billion over five years in transit systems across the Province which will help get cars off the road and reduce emissions. In addition, the government's five-year infrastructure investment plan – ReNew Ontario - commits over $3.1 billion over five years in direct provincial transit funding to improve transit networks.[62]

- The Ontario government was authorized to establish the greenbelt area and plan by the Greenbelt Act which became law on February 24, 2005.[63] The Greenbelt Plan identifies areas where urbanization should not occur and will permanently protect more than one million acres in southern Ontario from urban sprawl.

In sum, Ontario continues to provide leadership in controlling stationary and mobile sources of air pollution located within the Province through a comprehensive environmental strategy. The government's approach to air pollution control is to reward innovation and advanced technology, and to replace older electric generating units with cleaner and/or renewable energy sources.[64] This approach is reflected in the government's decision to replace all of the Province's coal-fired power plants with cleaner generation sources, and put in place a rigorous air pollution control program.

However, as the next part of these comments shows, Ontario cannot adequately protect public health and welfare in the Province without significant further emissions reductions from large sources of transboundary air pollution in the United States.

III. Relaxation of New Source Review Will Further Endanger Public Health and Welfare in Ontario.

In assessing the potential impact of the NSR Rule, Ontario has focused on the pollution contribution of U.S. coal-fired electric generating units to the U.S.-Ontario airshed. As noted above, more than half of Ontario's smog (ozone and PM) originates in the United States.[65] Pollutants emitted to the joint U.S.-Ontario airshed come from at least 20 U.S. states, and a significant portion of the long-range transboundary air pollution comes from U.S. coal-fired EGUs.[66] In many locations in Ontario, the U.S. contribution to air pollution ranges from 70 to 90%,[67] and as shown below the EGU portion of this transboundary pollution is predominant.

A. Endangerment Caused by Electric Generating Units in the United States

Ontario has identified 12 states that contribute pollution to the U.S.-Ontario airshed in which these states' total coal-fired EGU contribution of both SO_2 and NOx to the U.S.-Ontario airshed exceeds 75,000 tons. These states contain, in aggregate, 693 coal-fired EGUs that contribute pollution to the airshed. Publicly available data on U.S. EGUs shows that a very large number of these contributing EGUs lack modern pollution control technologies.[68]

Ontario has reviewed the SO_2 and NOx emissions from the 693 coal-fired EGUs in the 12 states to assess the risk to Ontario created by the proposed NSR Rule.[69] In these 12 states, there are 238 EGUs that are fifty years or older, and 26 of these EGUs were put into service in the 1940's or before, as shown by this chart:

Table 2: Age of Currently-Existing Coal-Fired U.S. EGUs Contributing to Air Pollution in Ontario—Fifty Years and Older[70]

State	Total # of EGUs	EGUs in Service In 1955 or before	EGUs in Service In 1945 or before
Illinois	63	19	1
Indiana	79	27	6
Iowa	44	15	5
Minnesota	39	15	0
Kentucky	60	17	0
Michigan	70	25	3
Missouri	49	8	1
Ohio	93	40	2
Pennsylvania	79	26	2
Tennessee	33	17	0
West Virginia	37	12	1
Wisconsin	47	17	5
TOTALS	693	238	26

As indicated in Table 2, more than one-third of the EGUs in the 12 states have been operating for more than half a century. These data on the age of EGUs contradict the statements made by the utility industry to the U.S. Congress on the expected useful lives of EGUs existing in 1977. As discussed below, at the time of the 1977 amendments to the Clean Air Act, the utilities were telling Congress that many of the older coal-fired plants would be facing retirement within 10-15 years. The data also show the extent to which a coal-fired EGU's useful life can be extended, and how long these EGUs can continue to operate as "grandfathered" under the U.S. Clean Air Act.

Ontario has also examined the number of coal-fired EGUs in the 12 states that currently do not have any emissions controls or that have emissions levels that indicate the absence of available pollution control technologies. For the purpose of the tables below, Ontario defines "well-controlled" EGUs as having an SO_2 emission rate less than 1.2 lbs/mmBtu *and* a NOx emission rate less than 0.25 lbs/mmBtu, generally achieved by post-combustion controls for both SO_2 (i.e., scrubbers) and NOx (i.e. selective catalytic reduction). Ontario defines "poorly-controlled" EGUs as having an SO_2 emission rate equal to or greater than 1.2 lbs/MMBtu *or* a NOx emission rate equal to or greater than 0.25 lbs/MMBtu. Such levels of emissions indicate that the EGUs lack modern emissions control equipment that is available, e.g., flue gas desulphurization for SO_2 and selective catalytic reduction for NOx. Ontario defines EGUs as "uncontrolled" if they are not equipped with post-combustion controls for NOx *and* SO_2. As set forth in Table 3 below, the number of uncontrolled or poorly controlled EGUs in the 12 U.S. states that send significant amounts of transboundary air pollution to Ontario is 617 out of a total of the 693 EGUs, a number constituting approximately 89% of the coal-fired EGUs in those states.

Table 3: Currently-Existing Coal-Fired U.S. EGUs That Are Uncontrolled or Poorly Controlled[71] and Contribute to Air Pollution in Ontario

State	Total # of EGUs	EGUs With No Controls	EGUs With Poor Controls
Illinois	63	1	44
Indiana	79	11	61
Iowa	44	1	42
Minnesota	39	14	22
Kentucky	60	1	46
Michigan	70	9	59
Missouri	49	8	39
Ohio	93	17	71
Pennsylvania	79	14	51
Tennessee	33	0	31
West Virginia	37	0	29
Wisconsin	47	4	42
TOTALS	693	80	537

Ontario has examined the current and projected amounts of SO_2 and NOx emissions from uncontrolled or poorly-controlled EGUs in these 12 U.S. states. As Table 4 below shows, coal-fired EGUs lacking modern control technology in these states were producing *each year* more than 5 million tons of SO_2 and 1.5 million tons of NOx as of 2003; these same units will still be producing more than 2.7 million tons of SO_2 and 750,000 tons of NOx in 2010.

Table 4: Emissions of Uncontrolled or Poorly Controlled Coal-Fired EGUs in Twelve U.S. States (2003 and 2010 data)[72]

State	Numbers of EGUs with Poorly Controlled or Uncontrolled Emissions in 2003	Emissions of SO_2 in 2003 (thousand tons/yr)	Projected Emissions of SO_2 for same EGUs in 2010 (thousand tons/yr)	Emissions of NOx in 2003 (thousand tons/yr)	Projected Emissions of NOx for same EGUs in 2010 (thousand tons/yr)
Illinois	45	273.29	141.80	90.04	43.03
Indiana	72	741.55	414.15	226.57	109.46
Iowa	43	131.79	146.23	76.32	49.23
Minnesota	36	69.39	64.22	63.70	26.67
Kentucky	47	330.90	261.99	100.52	86.43
Michigan	68	345.82	389.09	119.72	90.27
Missouri	47	254.38	261.05	142.16	65.10
Ohio	88	1,103.04	333.96	304.78	84.29
Pennsylvania	65	878.40	218.97	145.51	68.25
Tennessee	31	324.71	191.81	106.83	31.53
West Virginia	29	415.40	157.51	129.63	47.37
Wisconsin	46	176.40	145.36	72.07	50.46
TOTALS	617	5,045.07	2,726.14	1,577.85	752.09

Given the extent of these emissions and their continuing contribution to pollution in Ontario, it is clear that the potential impact of the NSR program on uncontrolled or poorly controlled EGUs is of major importance to Ontario because NSR has proven to be an effective mechanism for cleaning up dirty plants in the airshed. Even after some of the U.S. coal-fired EGUs adopt more modern control technologies as a result of ongoing air pollution control programs in the U.S., e.g., the CAIR Rule, a review of EPA's database on U.S. EGUs shows that 346 of these EGUs will remain poorly or completely uncontrolled. As shown in Table 5 below, in 2010 these 346 EGUs will produce more than 1.45 million tons of SO_2 and 460,000 tons of NOx.[73]

Table 5: Projected Emissions of U.S. EGUs Remaining Uncontrolled/Poorly Controlled in 2010[74]

State	# of EGUs with Poorly Controlled or Uncontrolled Emissions – 2010	Projected Emissions of SO_2 in 2010 (thousand tons/yr)	Projected Emissions of NOx in 2010 (thousand tons/yr)
Illinois	5	16.29	8.54
Indiana	42	191.51	78.34
Iowa	25	80.44	26.11
Minnesota	24	23.85	7.27
Kentucky	42	221.58	75.74
Michigan	33	110.51	49.01
Missouri	28	75.75	28.65
Ohio	51	242.64	53.87
Pennsylvania	35	166.21	49.19
Tennessee	17	147.69	26.54
West Virginia	14	110.62	33.97
Wisconsin	30	70.86	29.20
TOTALS	346	1,457.95	466.28

The above data make it plain that there is a substantial lost opportunity in potential pollution reductions from NSR enforcement against the coal-fired EGUs in the 12 states that contribute the greatest pollution to the Ontario airshed. NSR enforcement could result in millions of tons of air pollution reductions in SO_2 and NOx emissions in the U.S., and these reductions could in turn have a significant positive health and economic impact on Ontario. If early settlements are pursued, NSR enforcement benefits would be greatest over the next five years until 2010, before the first phase of CAIR-mandated pollution reductions occur. The difference would be even greater, of course, if CAIR implementation is delayed as a result of legal challenges or policy changes. During these five years, failure to enforce NSR against the coal-fired utilities in the 12 states would mean that Ontario's air quality would continue to be severely impacted by U.S. EGU emissions.

The Human Cost of Transboundary Air Pollution and the NSR Rule. EPA's decision to stop seeking significant reductions in U.S. EGU emissions through NSR enforcement is not just a matter of policy and politics. Ontarians know that there will be a terrible human cost to this decision—continued bad air in 2006 and beyond. Elimination of NSR enforcement means that the transboundary air pollution degrading public health in Ontario will remain and probably worsen, and that the health statistics will continue to tell a sad story:[75]

- *More than 5,800 Ontario residents will continue to die prematurely each year from air pollution-related conditions.*

- *Almost 17,000 Ontario residents will continue to be admitted to hospital each year from air pollution-related conditions.*

- *Almost 60,000 Ontario residents will continue to make emergency visits each year from air-pollution related conditions.*

- *The total annual economic cost of air pollution in Ontario will continue to be approximately $10 billion per year, with approximately $7 billion in health-related damages, and another $3 billion per year in environmental damages.*

Beyond statistics, Ontario wants EPA to see the reality of air pollution in the Province. A February 15, 2006 letter from the president of the Ontario Medical Association (OMA) stresses the magnitude of the health impacts on the citizens of Ontario. The letter states that the "OMA sees Ontario's smog problem, specifically ground-level ozone, particulate matter and their precursors, as representing a public health crisis." The letter goes on to state that the OMA "has long been aware of the significant influence from U.S. point sources of pollution, especially coal-fired power plants." The full text of the letter from the OMA is attached as Appendix A. As long as EPA fails to enforce the Clean Air Act, hundreds of thousands of Ontario citizens will continue to be put at risk from U.S.-produced air pollution every year.

B. The Clean Air Interstate Rule Will Not Adequately Protect Public Health and Welfare in Ontario

EPA has sought to offer assurances that the Clean Air Interstate Rule (CAIR) and other initiatives will be an effective mechanism for mitigating future impacts resulting from the changes in pollution measurement incorporated in the NSR Rule.[76] From Ontario's perspective, the reductions from CAIR, even if they occur, will be simply too little, too late. The CAIR emission reduction targets for 2010 and 2015 allow pollution levels that would still endanger health and welfare in Ontario, and many of the pollution reductions occur at EGUs that do not contribute substantially to the Ontario airshed.

Scientists with the Ontario Ministry of the Environment have assessed the impact of CAIR in 2010 by conducting a two-phase analysis. First, Ontario scientists reviewed the EPA's *Technical Support Document for the Final Clean Air Interstate Rule: Air Quality Modeling, March 2005*.[77] The results for ozone are summarized in the body of that document. Appendix E of the document provides county by county data for current ambient ozone levels for their fourth highest 8-hour averages (based on 1999 to 2003 data), and for projected 2010 and 2015 Base and CAIR concentrations determined by changes to modeled concentrations relative to a 2001 base year run. For the states adjacent to southern Ontario (Michigan, Ohio, Pennsylvania and New York), Appendix E shows that most counties had current fourth highest ozone concentrations in the 80 to 95 parts per billion (ppb) range, similar to data for southern Ontario. EPA Model results in Appendix E show that the fourth highest ozone concentration would generally be reduced by 5% to 15% by 2010 (assuming the reductions from CAIR are made). The projected

2010 concentrations shown in Appendix E are generally in the 75 to 80 ppb range, with some U.S. counties projected to be higher than 85 ppb.

In the second phase of the analysis, Ontario scientists performed modelling using the EPA Community Multi-scale Air Quality Model (CMAQ) assuming the reductions from CAIR and those from the coal closure in Ontario, and projecting ozone concentrations in 2010. The modelling provided per cent reductions in the ozone 8-hour maximum on high concentration days at locations in southern Ontario that were consistent with those identified in the EPA document. Applying the percentage reductions to the data for current ozone levels in southern Ontario resulted in projected fourth highest concentrations of 75 to 80 ppb, or higher, at almost all the locations, which are well above the Canada-Wide Standard for ozone. Further, not a single location in Southern Ontario would be at or below the ozone standard. The specific results of the modelling are set out in Table 6 below.

Table 6: Analysis by Ontario Scientists on Impact of CAIR on Ozone levels in Ontario communities in 2010 (Source: Ontario Ministry of Environment)

City	2001-2003 ozone level in ppb (3 year average)	Modelled Reduction in %	Projected 2010 ozone levels with CAIR and coal closure by Ontario
Windsor	88	6	83
London	87	10	78
Guelph	87	9	79
Kitchener	88	9	80
Hamilton	88	10	79
St. Catharines	88	10	79
Burlington	82	9	75
Peel	88	8	81
Toronto	89	7	83
Oshawa	84	6	79
Peterborough	92	5	87
Kingston	87	9	79
Ottawa	76	9	69

The analysis by Ontario scientists demonstrates that in 2010, when the first phase of CAIR is implemented, when Ontario's coal-fired power plants are shut down, ozone concentrations of 75 to 80 ppb or higher will still occur at many locations in Southern Ontario, thus continuing to put the region out of compliance with the CWS for ozone of 65 ppb. Thus, CAIR is not adequate to protect public health and welfare in Ontario.

States located in the Northeast have views similar to Ontario concerning the inadequacy of CAIR. The Northeast States for Coordinated Air Use Management (NESCAUM), an association of the air quality agencies of the eight northeastern states, believes that CAIR fails to address fully the significant contributions from midwestern EGUs covered by CAIR.[78] And the OTC has stated that CAIR makes "attainment of the health standards within the region virtually impossible to achieve."[79]

As noted above, enforcement of the existing NSR Rule could result in millions of tons of actual and immediate emissions reductions from U.S. EGUs. Therefore, EPA's reliance on

CAIR to support the proposed NSR rule is misplaced. While in the long term, CAIR and other programs may achieve significant emission reductions from the EGU sector, in the short-term and especially in the next 5 to 10 years, greater emissions reductions could be achieved through vigorous enforcement of the current NSR regulations. In 2009, Ontario will have met all of its reduction targets for its coal-fired plants. This is in stark contrast to the EPA CAIR proposal, which will not be fully effective for at least a decade, if it is implemented as planned. In fact, there is reason to believe that CAIR could ultimately not be implemented as planned, in light of currently-pending court challenges against CAIR.[80]

Moreover, the CAIR rule is not designed to reduce pollution impacts on local and regional air quality—in this case, impacts on the joint U.S.-Ontario regional airshed from midwestern EGUs—whereas the purpose of the NSR program was precisely to address local and regional sources of pollution that are not controlled by nationwide programs.[81] A related problem in relying on CAIR is that a number of U.S. utilities currently have banked allowances under Title IV of the Clean Air Act; when these banked allowances are utilized, EPA acknowledges that it will not be possible to achieve the nationwide caps that EPA projects for SO_2 and NOx for 2010 and 2015.[82] This makes it even more important that NSR enforcement be available to ensure that older poorly-controlled facilities with banked allowances adopt modern pollution controls to control the long-range transport of pollution into regional airsheds.

In addition, as detailed in the tables above, many of the EGUs that emit transboundary pollution will remain uncontrolled or poorly controlled under CAIR; in fact, none of 617 EGUs in the 12 states that are uncontrolled or poorly controlled will be subject to CAIR until 2009 for NOx and 2010 for SO_2. Even with the CAIR Rule in place, millions of tons of SO_2 and NOx will be emitted by these 617 EGUs. Since parts of Ontario receive as much as 77% of their sulphur and nitrogen pollution from U.S. sources,[83] transboundary air pollution from the U.S. will continue to be a major problem for years to come. Further, CAIR only addresses SO_2 and NOx, while enforcement of the NSR Rule could result in reductions of other air pollutants from EGUs, such as PM, VOCs and mercury. While CAIR may at best achieve approximately 70% reductions in SO_2 and NOx, the pollution control technologies and emission limitations from NSR enforcement usually result in more than 90% reduction of SO_2 and NOx.[84]

Consequently, EPA's reliance on CAIR as a replacement for the NSR Rule is seriously flawed, and these rules will not address the immediate human cost of transboundary air pollution in Ontario.

IV. The Proposed Rule Change is Inconsistent with the Legislative History of the Clean Air Act and Recent Judicial Rulings.

The U.S. Clean Air Act was intended to require U.S. utility companies to phase-out older, high-polluting electric generating units or to install more modern emission control technology on these units. Instead, during the nearly three decades since the 1977 Clean Air Act Amendments were adopted, major life-extending modifications have occurred at hundreds of uncontrolled or poorly controlled older units in the U.S.[85] The evidence indicates that a number of U.S. utilities may have violated (either intentionally or unintentionally) the New Source Review rules[86] that were intended to protect local and regional airsheds (such as the U.S.-Ontario airshed), and the proposed rule may provide undeserved administrative forgiveness by EPA for these violations.

Ontario believes that EPA's proposed action is not sound public policy and is not legally justified for the following reasons: (1) the legislative history of NSR shows that EPA's interpretation is not what Congress contemplated when it wrote the NSR provisions into law; (2) the majority of recent court rulings do not support EPA's interpretation of the NSR provisions; (3) independent and highly respected organizations have found that EPA's interpretation is inconsistent with the Clean Air Act; (4) EPA's preferred and alternative EGU emission tests are seriously flawed; and (5) EPA's action, if it is allowed to proceed, will undermine compliance and enforcement efforts under the Clean Air Act.

(1) The legislative history of NSR shows that EPA's interpretation is not what Congress contemplated when it wrote the NSR provisions into law.

When it wrote the 1977 amendments to the Clean Air Act, Congress was aware that the standards that applied to new plants would not, by themselves, achieve adequate reductions from power plants.[87] While Congress had "grandfathered" existing electric generating units from the requirements to install pollution control equipment in 1970, it determined in 1977 that modified EGUs should be subject to a strict preconstruction review and permitting process. Congress was especially concerned about power plant emissions in areas that were not attaining air quality standards.[88]

The distinction between grandfathered power plants and new/modified sources subjected to the preconstruction review and permitting process was aimed at balancing the twin goals of environmental quality and economic growth.[89] But as EPA's own investigations have shown, the balance was undermined when utilities sought to extend the life of their facilities without complying with NSR requirements.[90] The problem has grown significantly worse in recent years, as EPA has adopted new rules that have weakened the NSR enforcement program.

At the same time that Congress adopted NSR, it expanded mechanisms in the Act in an effort to protect downwind states and neighbouring countries from air pollution emitted in the U.S. During Senate floor debate on the 1977 Amendments, Senator Edmund Muskie (the chief sponsor of the legislation) noted the concerns about the long-range transport of air pollution, and the damages that are imposed on downwind locations:

> [There are] an increasing number of studies indicating that pollutants are transported much greater distances than previously thought ... sulfur and nitrogen oxides increasingly are returning to the ground in the form of acid rain which damages valuable water and soil resources ... there is increasing evidence of the long-range transport of pollutants that become sulfates, acid rain and other phenomena affecting human health, vegetation and soils ... sulfates and nitrates from the sulfur and nitrogen oxides emitted from fuel-burning sources ... are thought to be more toxic forms than the oxides of sulfur and nitrogen that are actually emitted at the smokestack ....[91]

Thus, in 1977, Congress was made aware that pollutants could travel long distances and could create harmful conditions such as acid rain, and the legislators created a mechanism through Section 115 of the Clean Air Act[92] to protect neighbouring countries from long-range

transport of SO_2 and NOx. Congress also created a parallel mechanism for downwind states to seek relief from long-range air pollution transport in Section 126.[93] Since 1977, eleven states have filed petitions seeking relief from interstate pollution under Section 126.[94] The 1977 legislation demonstrates strong congressional direction to provide an effective legal mechanism to protect downwind jurisdictions that are endangered by air pollution from upwind locations.

It is also clear that Congress did not intend to provide for perpetual life-extensions for older, existing EGUs. At the time NSR was adopted, Congress was told that large numbers of the existing generating units were heading toward the end of their useful lives.[95] It was expected that, absent modification or upgrade, these aging existing plants would eventually reach the end of their useful lives and close. As stated by one court:

> Congress chose to "grandfather" existing pollution sources from NSPS and NSR provisions at the time the [Clean Air Act amendments] was enacted...Congress did not, however, intend that such existing sources be forever spared the burden and expense of installing pollution control devices.[96]

At the time of the 1977 amendments to the Clean Air Act, the utilities told Congress that many of the older plants would be facing retirement with 10-15 years.[97] Senator Howard Baker noted during the 1977 congressional debates that there were approximately 200 old coal-fired power plants in the U.S. over 20 years of age, and that most would be totally phased out of operation in the next 5 to 20 years.[98] As noted above, it has been nearly 30 years since the 1977 amendments were adopted, and many of the grandfathered plants are still in service. Table 2 above shows that more than 200 of the EGUs that were in service in 1955 or before are in the 12 states that contribute significantly to the Ontario airshed.

These figures on the ages of EGUs make it clear that these plants have been operating *far beyond* the operating lifetimes represented by the utilities and accepted by Congress. EPA investigations conducted in the late 1990's found that more than 70% of the coal-fired EGUs were in violation of NSR.[99] EPA referred nine large U.S. utility companies to the Justice Department for prosecution in 1999 for allegedly operating without permits and pollution control technology required by NSR. These nine companies' EGUs alone generated more than 40% of the total megawattage generated in the U.S., but EPA was at one time investigating additional NSR enforcement cases that would have covered another 40% of all U.S. electricity megawattage.[100] To date, as a consequence of NSR, U.S. utilities have been forced to reduce pollution emissions at more than 100 EGUs.[101] These referrals and prosecutions indicate a widespread pattern of EGU life extensions without NSR compliance. Moreover, the actual tonnage of emissions associated with coal-fired EGU NSR violations is of significant concern to Ontario. One EPA official admitted that the scale of the NSR violations was disturbingly large: "The NSR cases involved immense amounts of NOx and SO_2 emissions, often as much as 50,000 tons per year of excess emissions of SO_2 from one plant. Those are huge amounts of pollution."[102]

The EPA's proposal to change its EGU air pollution measurement system away from an "annual-actual" standard to an "hourly-achievable" standard contradicts Congress' intent when it wrote the 1977 law, because the EPA's proposal is likely to provide indefinite life extensions for

coal-fired EGUs. The critical issue is whether utilities that are undertaking activities that could increase the availability and reliability of EGUs should have to anticipate that such projects would increase emissions, and be required to undergo pre-construction review and permitting. As expressed by the City of Toronto in its brief in one NSR enforcement case, it is inevitable with these projects that EGU life extensions will increase emissions.[103] As discussed below, most courts have concluded that the appropriate method of calculating whether emissions have increased in these projects is to do a comparison between past *actual* and future *actual* emissions on a gross annual basis. To do otherwise, as EPA is now proposing, would allow utilities to escape pre-construction review of these projects by allowing an hourly-achievable emissions test that does not adequately capture actual emissions.

EPA's internal analysis of the NSR hourly-achievable proposal presents a "case study" illustrating why EPA's current proposal significantly underestimates the actual emissions from life-extending EGU modifications: using EPA's "preferred" test, the achievable hourly emission rate was calculated to be more than ten times higher than the average hourly emission rate in the five-year period prior to the life-extending project. EPA concluded that the hourly-achievable emission rate was not a clear indicator of capacity, and that any increase in capacity caused by such a life-extending project would not "register" because the comparison takes place at a level 10 times higher than representative emissions of the EGU.[104] But the importance of using an annual-actual test is not merely seen in a theoretical case study; in one of the NSR enforcement cases discussed below, a refurbishment project by Duke Energy Corporation enabled eight seriously deteriorated plants to increase their actual emissions measured in tons per year. Under the annual-actual test previously required by EPA, these projects could trigger NSR; under the hourly-achievable test advanced by the NSR defendant Duke Energy, and now by EPA, these eight projects do not trigger NSR.[105]

As a policy matter, the EPA's NSR proposal undermines the incentives that Congress sought to incorporate in the Clean Air Act. The proposal provides grandfathered EGUs with an incentive to upgrade existing old boilers and obtain additional capacity without installing modern control technologies. As a result, there will be fewer resources and a reduced commitment to build new EGUs with modern pollution controls or to install such control technologies on older units. This dynamic was obviously present in the Duke Energy case referenced above, where a company representatives admitted that "historically, units of this age and condition would be retired and scrapped", but obviously there was an economic incentive for Duke Energy to keep these old uncontrolled plants open.[106] This is precisely the opposite of what Congress intended when it wrote the 1977 amendments to the Clean Air Act. Further confirmation of Congress' intent regarding the proper interpretation of NSR came in 1990 when an amendment to change the NSR applicability test to an hourly test was defeated. Congress specifically acknowledged EPA's then-existing interpretation that EGU changes that caused an increase in EGU capacity could trigger NSR.[107]

In sum, while the 1977 NSR rules were primarily aimed at protecting public health and the environment in the U.S., the NSR rules were part of a package of air pollution control measures designed to protect downwind receptors in both the U.S. and neighbouring countries. SO_2 and NOx were of particular concern for the Congress in 1977, and EGUs can most effectively reduce emissions of these pollutants by installing advanced control technologies under the NSR program. However, if the changes in NSR go forward, it is unlikely that U.S.

utilities will install emissions control equipment on older EGUs that are otherwise exempt from controls under the Clean Air Act. We do not believe that this is what Congress intended in 1977 when it established the NSR program and the parallel programs that are designed to protect downwind states and neighbouring countries from the long-range transport of air pollution.

(2) Most recent court decisions do not support EPA's interpretation of the NSR provisions.

The Clean Air Act requires electric generating units to adopt pollution controls before making any physical or operational modification that could reasonably be expected to increase pollution.[108] Senator Muskie, the chief sponsor of the bill that incorporated NSR, stated on the Senate floor that:

> A source ... is subject to all the nonattainment requirements as a modified source if it makes any physical change which increased the amount of any air pollutant.[109]

The early NSR cases reflected Senator Muskie's position. In *Alabama Power v. Costle*,[110] the D.C. Circuit said that the modification provisions of NSR meant that if modified plants increase pollution, those plants would require an NSR permit. The D.C. Circuit said plainly that "perpetual immunity" should not be provided to older EGUs subject to NSR.[111] In *WEPCO v. Reilly*,[112] the U.S. Court of Appeals for the Seventh Circuit determined that a boiler replacement and upgrade would trigger NSR if emissions would be increased. The court noted that, while repair of deteriorated equipment could contribute to the useful life of a power plant, this is significantly different from activities that would extend the life expectancy of the plant. Any other reading of NSR, said the court, would open "vistas of indefinite immunity."[113]

In enforcement cases following *Alabama Power* and *WEPCO*, EPA followed those courts' reasoning in opposing a maximum hourly test for NSR that utilities put forward as a defense to EPA's NSR enforcement. For example, in *U.S. v. Cinergy*,[114] a U.S. district court rejected an attempt by an EGU to use the hourly test to avoid NSR enforcement. The court stated that it was appropriate for EPA to use the actual annual test so that projected actual emissions would be measured using projected actual operating hours and projected actual production rates. The *Cinergy* court stated that if a physical change at a power plant results in an increase in the plant's hours of operation that causes a net emissions increase, then a modification requiring NSR has occurred.[115]

Most recently, the U.S. Court of Appeals for the District of Columbia Circuit held that it is inappropriate to use "potentially achievable emissions" as the baseline for determining whether an increase occurs that would trigger NSR. In *New York v. USEPA*,[116] a decision handed down in June 2005, the D.C. Circuit rejected the electric industry's "potential-to-potential" NSR emissions test method in favor of EPA's then-prevailing "actual-to-projected actual" approach to measuring emissions for NSR purposes. In light of the fact that the D.C. Circuit has been given a special role by Congress in overseeing EPA rulemakings,[117] this recent ruling by the D.C. Circuit suggests that EPA's use of potentially achievable emissions is inappropriate. As the court stated, "the plain language of the [Act] indicates that Congress intended to apply NSR to changes that increase actual emissions instead of potential or allowable emissions."[118]

Indeed, the D.C. Circuit's adoption of the actual annual NSR measurement test was cited as authority in the briefs filed by EPA in a series of NSR enforcement actions. For example, in seeking a rehearing of the *Duke Energy* decision of the U.S. Court of Appeals for the Fourth Circuit, EPA explicitly endorsed the D.C. Circuit's ruling that the Clean Air Act "unambiguously defines 'increases' in terms of actual emissions" and that "the plain language of [the Act] indicates that Congress intended to apply NSR to changes that increase actual emissions instead of potential or allowable emissions.[119] In supporting EPA's interpretation of NSR that applied at the time, a petition for certiorari in the *Duke Energy* case set forth a clear rationale for that interpretation:

> A test for emissions increases that is triggered only by increases in maximum hourly emissions rate artificially excludes from the "emissions increase" inquiry one of the three basic factors – hours of operation – that ... determines how much pollutant a source actually releases into the air ... it surely undermines Congress's purpose in subjecting "modifications" to PSD review, disregarding as it does real, physical increases in emissions of hundreds of tons and offering "vistas of indefinite immunity ... to aging facilities that Congress in 1977 expected would soon be retired.[120]

This certiorari petition also makes the point that the D.C. Circuit is the appropriate forum to resolve highly technical interpretations of the Clean Air Act, and that the Fourth Circuit's decision in *Duke Energy* improvidently usurps that authority.[121]

Given the strong judicial support for actual annual emissions tests for NSR enforcement purposes, the hourly emissions test that EPA is now proposing seems designed to guarantee that existing older plants can avoid NSR enforcement and can be kept open with no regulatory incentive/direction to modernize and reduce emissions. To the extent that EPA's proposed rule provides "perpetual immunity" to older EGUs, it runs counter to the holdings in *Alabama Power, WEPCO, Cinergy and New York v. USEPA.*

(3) Independent and highly respected organizations have found that EPA's interpretation is inconsistent with the Clean Air Act.

Past EPA actions with respect to NSR have been heavily criticized by authoritative U.S. institutions such as the congressionally-chartered National Academy of Public Administration (NAPA). In a 2003 report that was requested by EPA's oversight committee in the U.S. Senate, NAPA made the following findings:[122]

- EPA's implementation of NSR has allowed the persistence of old, polluting equipment and production technology, and created incentives for more polluting facilities to continue operating, thus breaking the link between capital investments and upgrading equipment to prevent or control pollution.

- EPA early lack of enforcement of NSR against existing facilities that did not obtain NSR permits for modifications failed to deter further NSR violations and prevented NSR from being effective in reducing emissions from such facilities.

- EPA has previously created a broad loophole in NSR by allowing utility companies to claim that substantial, life-extending projects are "routine maintenance" and exempt from NSR. Older EGUs have used the routine maintenance exclusion to avoid natural turnovers in equipment and to avoid upgrades with cleaner technologies as envisioned by Congress.

NAPA recommended that EPA continue to enforce NSR vigorously because such actions "produce significant environmental benefits, deter future violations, and encourage other modified facilities to comply with NSR." Overall, NAPA viewed NSR as a critically important program at national, state and local levels for attaining and maintaining health-based air quality standards under the Clean Act Act.[123]

In 2004, the Northeast States for Coordinated Air Use Management (NESCAUM), analyzed the various EPA NSR proposals and evaluated the risks to human health from EPA's incremental steps to roll-back NSR enforcement. In its June 2004 report to the Environmental Commissioners of the New England States, NESCAUM maintained that NSR is a critical component of the Clean Air Act's strategy to control emissions from large industrial sources, and that EPA's NSR changes would "enable old, high-emitting sources to further extend their productive lives by modernizing without upgrading pollution control." To quantify potential emission increases that could result from previous changes to NSR, NESCAUM analyzed allowable and actual emissions of 308 facilities in six states that would be subject to NSR. NESCAUM found that changes to NSR could result in significant increases in potential emissions from these 308 facilities, especially damaging to downwind New England States. NESCAUM concluded that EPA's previous NSR reform initiatives will undermine the intent of Congress by permanently exempting grandfathered sources from the pollution control requirements that apply to newer sources.[124]

In December 2005, the State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (STAPPA/ALAPCO) presented testimony to EPA on the currently proposed NSR rule changes. In testimony presented by John Paul, supervisor for the Regional Air Pollution Control Agency located in Dayton, Ohio, STAPPA/ALAPCO pointed out that the "maximum achievable" hourly rate test provides a baseline that may be as much as 10 times higher than the representative actual emissions, thereby ensuring that NSR will almost never be triggered. Mr. Paul also noted that:

- No increases in emissions, before and after a modification to an EGU, would likely ever result from a modification and trigger NSR requirements; this is because EPA's proposed rule does not require representative actual emissions from the five years before the change to constitute a baseline amount for NSR purposes.

- Under the proposed NSR Rule, EGUs can make major changes to their operations, operate their equipment for longer hours, and increase their emissions thousands of tons per year without pollution controls or analysis of the impacts on air quality.

- The proposed NSR Rule will interfere with the ability of U.S. state and local agencies to develop plans to achieve and maintain national ambient air quality standards.

This testimony, by a local air pollution control official from Ohio, is highly probative, especially when so many Ohio utilities are old, lack modern control technology and contribute significant pollution to the U.S.-Ontario airshed.

(4) EPA's preferred and alternative EGU emission tests are seriously flawed.

In its October 2005 proposed rule, EPA requested comment on a preferred and two alternative emissions tests for EGUs. *See* 70 Fed. Reg. 61,081. Ontario opposes each of these tests because the end result of EPA's adoption of any of the tests would likely be that virtually no EGU would ever be subject to NSR. Each of the tests discussed in EPA's proposed rule has serious legal and technical flaws that render the test inconsistent with congressional intent and insufficiently protective of public health.

As noted above, EPA's "preferred" test, the maximum achievable hourly emissions test, is not the proper measure of actual emissions as required by the Clean Air Act and numerous courts, principally because the test measures emissions increases by determining what an EGU could *potentially* emit before and after a modification, not what the facility *actually* emitted. Utilities accused of NSR violations in the past have consistently tried to advance as a defense EPA's preferred test, but as EPA's own air enforcement office has stated, "the effect of [EPA's preferred NSR test] is to make very few, if any, changes modifications that trigger NSR...such a test is a measure of the 'potential' emissions of a source (and not an accurate one at that) in the classic and historic sense of the term."[125] Before its recent shift on NSR, EPA enforcement counsel argued in 2004 that the hourly rate test advanced by the utilities would turn a "blind eye to potentially massive quantities of increased annual emissions" by assuming that hours of operation following a change will remain constant so long as the hourly rate does not first change. At that time, EPA maintained that an hourly test would be in essence an "actual-to-pretend-actual test".[126] EPA's internal analysis also indicated that its currently-preferred test could result in emission rates ten times higher than the average hourly emissions rates in the five year period prior to a modification.[127] Ontario believes this is a result that is inconsistent with protecting public health and the environment.

Ontario also believes that EPA's first alternative EGU emissions test, the maximum achieved hourly emissions test, suffers from many of the same flaws as EPA preferred test. The language of the Clean Air Act specifically defines major emitting facilities in terms of *annual* emissions,[128] and the first major federal court ruling on NSR stated that Congress had designed the NSR provisions to be concerned with annual emissions.[129] Other federal courts have stated their view that hourly emissions testing would not protect the public against degraded air quality.[130] EPA has apparently not undertaken any analysis of the potential impacts of its alternative hourly test, despite the significant risk to public health that could be produced by any hourly test.

As for EPA's second alternative test, based on energy output, EPA has not provided the necessary additional detail and specific regulatory language that would enable Ontario to comment. However, Ontario remains concerned that this second alternative test is yet one more method of weakening NSR so that EGU modifications are never subject to NSR enforcement.

(5) EPA's action, if it is allowed to proceed, will undermine compliance and enforcement efforts under the Clean Air Act.

A recent *New York Times* article quotes two former senior EPA enforcement officials on the enforcement potential of NSR program. The first stated that the utility industry's noncompliance with NSR was "the most significant noncompliance pattern EPA had ever found." The second had investigated whether U.S. coal-fired utilities had obtained the proper NSR permits, and stated that "we started looking around for the permits, but there weren't any."[131] Despite the evidence of widespread violations, there are numerous indications that EPA is now intending to abandon NSR, and the likely effect of the NSR Rule is that no EGUs will ever become subject to NSR enforcement. In an August 25, 2005 memo, EPA staff noted that if the maximum achievable hourly emissions test at the heart of the NSR Rule were adopted:

> [a] utility would have many ways to show that a particular capacity is or was theoretically achievable, which makes analysis of the impact of the test difficult and application of the test largely unenforceable...one can only conclude from application of the so-called "achievable" test that no "change" causing an emissions increase (capacity or otherwise) at an EGU would trigger NSR requiring the source to seek a pre-construction permit from its permitting authority and install pollution controls.[132]

Such favourable treatment of U.S. EGUs is troublesome in light of the fact that EPA has also indicated that 70% of these EGUs probably violated currently existing NSR standards[133] and illegally emitted pollution that was transported to Ontario. As noted above, many of the EGUs that will receive special new treatment under EPA's proposed NSR Rule are uncontrolled or poorly controlled under current and future EPA clean air programs, and these EGUs emit millions of tons of pollutants into the Ontario airshed every year.

When EPA announced its new guidelines for NSR, a number of utilities walked away from negotiations that would have produced significant transboundary emissions reductions for the U.S.-Ontario airshed. In 2004, EPA's Office of the Inspector General analyzed existing enforcement cases, cases already referred to the Department of Justice, and cases ready for referral. The analysis showed that settlements of NSR enforcements over a ten-year period had resulted in reductions of more than 440,000 tons of SO_2 and 210,000 tons of NOx at 74 EGUs. The analysis of pending cases in 2004 indicated that more than 1.75 million tons of SO_2 and 629,000 tons of NOx could be eliminated through NSR enforcement.[134] Since the Inspector General's investigation, three additional NSR settlements with U.S. utilities have resulted in reductions of another 245,000 tons of pollution.[135] However, these kinds of potential reductions cannot be achieved if EPA proceeds with the changes it now proposes to the NSR program. EPA's enforcement investigations indicated that as many as 80% of the total EGUs in the U.S. have been or could be subject to NSR enforcement.[136] If EPA were to continue its NSR enforcement efforts, it has been estimated that as much as 7 million tons of SO_2 and 2.4 million tons of NOx would be eliminated by the year 2020.[137] Such emissions reductions would have significant and continuing benefits for the citizens of Ontario and our neighbours.

Conclusion

It is clear that pollution from the electric utility sector in the United States is causing significant health and environmental effects in Ontario. If NSR were vigorously enforced, as Congress intended, these adverse effects would be greatly reduced. Ontario therefore urges EPA to abandon its proposed changes to the NSR rule, reverse course, and begin to vigorously enforce a program that has been an important part of American law for nearly three decades.

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February 15, 2006

The Honourable Laurel Broten
Minister of the Environment
135 St. Clair Avenue West
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Dear Minister Broten,

I am writing in support of your government's initiative to reduce the cross-border flow of air pollution into Ontario from the United States.

The Ontario Medical Association (OMA), which represents the 25,000 physicians in the province of Ontario has long advocated on behalf of our patients for cleaner, healthier air. The OMA has researched and quantified the local health effects and economic costs associated with air pollution illnesses, has been a vocal proponent of clean air policies and monitored emission reduction initiatives on both sides of the Canada-U.S. border.

The OMA sees Ontario's smog problem, specifically ground-level ozone, particulate matter and their precursors, as representing a public health crisis. In our Illness Costs of Air Pollution 2005 report and accompanying software model, we estimate that a staggering 5,800 Ontarians die prematurely each year as a result of this pollution. Many more of our patients fall ill and require treatment, with nearly 60,000 smog-related visits to a hospital Emergency Department annually. We estimate that the economic impact of smog illness alone is nearly $1 Billion, and we project an increase in both illnesses and costs unless significant air quality improvements are made.

We are pleased that the Government of Ontario has incorporated our work on smog's health burden into its policy analysis. Both your Transboundary Air Pollution in Ontario report and the Ministry of Energy's Cost Benefit Analysis: Replacing Ontario's Coal-Fired Electricity Generation report, make very good use of OMA's analysis of health impacts.

The OMA continues to support initiatives to reduce local emissions, but has long been aware of the significant influence from U.S. point sources of pollution, especially coal-fired power plants. As far back as the OMA Health Effects of Ground-Level Ozone, Acid Aerosols and Particulate Matter report in 1998, we identified the need for emissions reductions from U.S. power plants and specifically identified the older, dirtier plants in the electricity generating fleet.

At that time we recommended, that there should be *"no exemptions under the Clean Air Act for old power plants that pollute at many times the rate of new power plants under current Clean Air Act standards"* for sulphur dioxide emissions. In reference to nitrogen oxides, OMA recommended that *"controls on emissions of NO_x from the electric power sector should be no less stringent than 0.15 pounds/million BTU, and that this standard should be applied to all plants, with no exemptions for old plants."*

The Ontario Ministry of the Environment's analysis of the current EPA proposal clearly shows that these standards have not been met and that much more must be done by the EPA to address emissions that impact the breathing health of our more than 10 Million patients.

Yours truly,

Gregory J. Flynn, MD, FRCPC
President, OMA

ENDNOTES

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[1] Ontario Ministry of the Environment, *Transboundary Air Pollution in Ontario* (June 2005) (*Ontario Pollution Report*), p. 92, http://www.ene.gov.on.ca/envision/techdocs/5158e_index.htm. This report, additional Ontario reports and other supporting materials cited in these endnotes but not widely available are contained on a CD-ROM included with these comments.

[2] *See* Environment Canada, *Canadian Environmental Sustainability Indicators: Highlights* (2005), p. 5, http://www.statcan.ca/english/freepub/16-251-XIE/16-251-XIE2005000.pdf.

[3] *Ontario Pollution Report* at 13, 38, 55.

[4] *See* Ontario Medical Association (OMA), *The Illness Costs of Air Pollution (2005 ICAP)* (June 2005), pp. 6-7, http://www.oma.org/Health/Smog/index.asp. This website also contains the Medical Association's previous report on *the Illness Costs of Air Pollution* from the year 2000, as well as a 2001 report entitled *Ontario's Air: Years of Stagnation*.

[5] Throughout this document, all Canadian cost figures are expressed in Canadian dollars.

[6] Premature deaths have been measured by the OMA on the basis of exposure to smog. *See* OMA, *The Illness Costs of Air Pollution: 2005-2026 Health and Economic Damage Estimates* (June 2005), p. 2.

[7] *Ontario Pollution Report* at 55.

[8] *Id.* at 38, 111-113.

[9] *Id.* at 13, 15. Background levels are estimated to be from 33 to 40 parts per billion in summer.

[10] *Id.* at 59, 60.

[11] *Id.* at 60-72.

[12] *Id.* at 72; *see also* Environment Canada, *2004 Canadian Acid Deposition Science Assessment* (*2004 Acid Deposition Assessment*), http://www.msc-smc.ec.gc.ca/saib/acid/assessment2004/assessment_2004_e.pdf; Kurvitz and Marta, *Agricultural NH^3 and NOx Emissions in Canada* (1998), http://www.agr.gc.ca/policy/environment/pdfs/air_quality/nitrogen.pdf.

[13] Environment Canada, *2004 Acid Deposition Assessment* at 408.

[14] *See* EPA, *Overview of the Human Health and Environmental Effects of Power Generation: Focus on Sulfur Dioxide (SO_2), Nitrogen Oxides (NOx) and Mercury (Hg)* (June 2002), p. 5, http://www.epa.gov/air/clearskies/pdfs/overview.pdf.

[15] *See* EPA, *Review of the National Ambient Air Quality Standards for Particulate Matter: Policy Assessment of Scientific and Technical Information, OAQPS Staff Paper* (December 2005), ch. 3, p. 24.

[16] Bilateral Air Quality Committee, *Canada-United States Air Quality Agreement: Progress Report 2004*, p. 37, http://www.ec.gc.ca/pdb/can_us/2004CanUs/intro_e.html; a series of IJC reports on transboundary air pollution issues can be found at http://www.ijc.org/conseil_board/air_quality_board/iaqab_pub.php.

[17] International Air Quality Advisory Board, *Summary of Critical Air Quality Issues in the Transboundary Region* (2004), p. 15, http://www.ijc.org/conseil_board/air_quality_board/iaqab_pub.php?language=english.

[18] *Ontario Pollution Report* at ii, 8, 33-38, 43-45.

[19] *Id.* at 17-21, 43-50.

[20] *Id.* at iii, 8-16, 43-49.

[21] The background levels shown in Figure 2 represent the ambient air pollution from background and from sources in the United States

[22] *Ontario Pollution Report* at 8-16, 47-49; Ontario Ministry of the Environment Ozone data 2001-2003; Ontario Ministry of Environment, *Preliminary Application and Evaluation of the Provisions of the Guidance Document on Achievement Determination for the* $PM_{2.5}$ *and Ozone Canada-Wide-Standards*, and Appendix (2005).

[23] *Id.* All Ontario ozone monitoring stations except Thunder Bay exceeded Canada-Wide Standards for ozone in the reporting years of 2001-2003. Most of the sites were in the 85 to 90 ppb (measured on a 3-year average of the annual fourth highest concentration, daily eight hour average value), well in excess of the 65 ppb Canada-Wide Standard.

[24] *See* EPA, Clean Air Markets database, http://www.epa.gov/airmarkets/mp/, under the heading Power Sector Modeling Supporting Materials --Run # 12 (IPM Run-CAIR/CAMR/CAVR); http://www.epa.gov/airmarkets/epa-ipm/index.html#needs and http://cfpub.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard.

[25] *See* Ontario Power Generation statistics, http://www.opg.com/envComm/SED_03report.pdf; http://www.opg.com/envComm/E_emissions_so2.asp, http://www.opg.com/envComm/E_emissions_no.asp.

[26] To enable comparisons to be made between Canadian and U.S. emissions, all emission figures throughout this document are expressed in U.S. short tons. Canadian tonnage figures have been converted from metric tonnes to U.S. short tons (1 metric tonne = 1.1023 short tons).

[27] *See* EPA, Clean Air Markets database, http://www.epa.gov/airmarkets/mp/ (under the heading Power Sector Modeling Supporting Materials --Run # 12 (IPM Run-CAIR/CAMR/CAVR) and http://www.epa.gov/airmarkets/epa-ipm/index.html#needs and http://cfpub.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard.

[28] *See* EPA, National Emissions Inventory Data and Documentation draft database (1999 data), http://emissionsonline.org/nei99v3/state/countyemissions99/pm25p.htm.

[29] *See* Statistics Canada, *Population by Year, by Province, and by Territory*, http://www40.statcan.ca/l01/cst01/demo02.htm?sdi=population.

[30] *Ontario Pollution Report* at 29-33, 43-46.

[31] Ozone Transport Commission, *Final OTC Multipollutant Program Development Strategy* (June 8, 2005), p.7.

[32] *See* Office of New York State Attorney General Eliot Spitzer, Press Release (Jan. 11, 2005), http://www.oag.state.ny.us/press/2005/jan/jan11c_05.html.

[33] *See* Pennsylvania Department of Environmental Protection, Newsletter (November 28, 2005), http://www.depweb.state.pa.us/news/cwp/view.asp?a=3&q=482037.

[34] *See* Pennsylvania Department of Environmental Protection, Newsletter (November 9, 2005), http://www.depweb.state.pa.us/news/cwp/view.asp?a=3&q=480420.

[35] Commission for Environmental Cooperation (CEC), *North American Power Plant Emissions* (2004), http://www.cec.org/pubs_docs/documents/index.cfm?varlan=english&ID=1688.

[36] *Id.* at 7, 15-16.

[37] *See* Congressional Research Service Issue Brief IB10137, *Clean Air Act Issues in the 109th Congress* (November 25, 2005; updated January 3, 2006), p. 2.

[38] *See also* Marufu *et al.*, *2003 North American Electrical Blackout*, Geophysical Research Letters (July 2004).

[39] The Canadian Council of Ministers of the Environment is made up of environment ministers from the federal, provincial and territorial governments. These 14 ministers normally meet twice a year to discuss national environmental priorities and determine work to be carried out under the auspices of the CCME. The CCME works to promote effective intergovernmental cooperation and coordination of interjurisdictional issues such as waste management, air pollution and toxic chemicals. For more information, *see* Environment Canada, *The Canadian Council of Ministers of the Environment*, http://www.ec.gc.ca/ceqg-rcqe/English/ccme/default.cfm.

[40] *See* CCME website, *Canada-Wide Accord on Environmental Harmonization*, http://www.ccme.ca/ourwork/environment.html?category_id=108.

[41] *See* CCME website, *Particulate Matter and Ground-Level Ozone*, http://www.ccme.ca/ourwork/air.html?category_id=99.

[42] The CWS for $PM_{2.5}$ is 30 $\mu g/m^3$, 24 hour averaging time; achievement to be based on the 98th percentile ambient measurement annually, averaged over three consecutive years. The CWS for ozone is 65 ppb, 8-hour averaging time; achievement to be based on the fourth highest measurement annually, averaged over 3 consecutive years. The CWS for ozone and $PM_{2.5}$ are to be met by 2010. See CCME, *Canada-Wide Standards for Particulate Matter (PM) and Ozone (2000)*, p. 4, http://www.ccme.ca/assets/pdf/pmozone_standard_e.pdf.

[43] *See* CCME, *Draft Canada-Wide Standards for Mercury Emissions from Coal-Fired Electric Power Generation Plants*, http://www.ccme.ca/assets/pdf/canada_wide_standards_hgepg.pdf.

[44] *See* Environment Canada vehicle program, http://www.ec.gc.ca/cleanair-airpur/Transportation_emissions-WS9D1A65D7-1_En.htm.

[45] *See* Environment Canada Clean Air Agenda expenditures, http://www.ec.gc.ca/cleanair-airpur/Clean_Air_Agenda-WS51062DA3-1_En.htm.

[46] The Ontario pollution reductions figures presented are the updates of data found in Ontario's 2004 Clean Air Action Plan, http://www.ene.gov.on.ca/programs/4708e.htm.

[47] All tonnage figures are expressed in U.S. short tons.

[48] Ontario Ministry of Finance, *Provincial Economic Accounts, 2004 Estimates*, Stats. Can. catalogue number 13-213.

[49] *See* Ministry of the Environment, News Release, *McGuinty Government Unveils Plan to Fight Smog in Ontario* (June 21, 2004), http://www.ene.gov.on.ca/envision/news/2004/062101.htm.

[50] *See* Ontario Regulation 396/01, http://www.e-laws.gov.on.ca/DBLaws/Regs/English/010396_e.htm).

[51] *See* Ontario Power Generation, *Sustainable Development Report* (2004), http://www.opg.com/envComm/SED_04report.pdf.

[52] *See* Ministry of Energy, News Release, *McGuinty Government Unveils Bold Plan to Clean Up Ontario's Air* (June 15, 2005), http://www.energy.gov.on.ca/index.cfm?fuseaction=english.news&body=yes&news_id=100; Ministry of Energy, News Release, *McGuinty Government Coal Replacement Strategy*,

http://www.energy.gov.on.ca/index.cfm?fuseaction=english.news&back=yes&news_id=100&backgrounder_id=75.

[53] *See* Ministry of Energy, News Release, *McGuinty Government Unveils Bold Plan to Clean Up Ontario's Air* (June 15, 2005), http://www.energy.gov.on.ca/index.cfm?fuseaction=english.news&body=yes&news_id=100.

[54] *See Ontario Government's Progress on Air Quality Initiatives* (June 2005), http://www.ene.gov.on.ca/envision/news/2005/060801mb.htm; *see also* Ontario Minister of Environment remarks (June 2005). http://www.ene.gov.on.ca/envision/news/speeches/060805.htm,;2004 Ontario Clean Air Action Plan restrictions on coal-fired utilities, http://www.ene.gov.on.ca/programs/4708e.htm.

[55] *See* Ontario Regulation 419/05, http://www.e-laws.gov.on.ca/DBLaws/Regs/English/050419_e.htm.

[56] *See* Ontario Regulation 194/05, http://www.e-laws.gov.on.ca/DBLaws/Regs/English/050194_e.htm.

[57] *See* Ontario Drive Clean Program, http://www.driveclean.com/.

[58] *See* Ontario Regulation 361/98, http://www.e-laws.gov.on.ca/DBLaws/Regs/English/980361_e.htm.

[59] *See* Ontario Reg. 535/05, Ethanol in Gasoline, http://www.e laws.gov.on.ca/DBLaws/Regs/English/050535_e.htm.

[60] *See Ontario Government's Progress on Air Quality Initiatives* (June 2005), renewable energy section, http://www.ene.gov.on.ca/envision/news/2005/060801mb.htm.

[61] *See Ontario Government's Progress on Air Quality Initiatives* (June 2005), conservation section, http://www.ene.gov.on.ca/envision/news/2005/060801mb.htm.

[62] *See* Ministry of Public Infrastructure Renewal ReNew Ontario plan, http://www.pir.gov.on.ca/userfiles/HTML/cma_4_42530_1.html .

[63] *See* 2005 Ontario Greenbelt Act, http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/05g01_e.htm.

[64] *See* Notes for Remarks by the Honourable Laurel Broten, Ontario Minister of the Environment, *Ontario's Leadership in Climate Change* (Sept. 22, 2005), http://www.ene.gov.on.ca/envision/news/speeches/092205.htm.

[65] *See Ontario Pollution Report* at 47-50.

[66] In 2004, CEC reported that U.S. coal-fired power plants contribute over 97% and 93% of the total SO_2 and NOx emissions respectively from the entire electric utility sector in the U.S. The CEC further found that the U.S. electric utility sector contributes 22% of the total NOx emissions and 69% of the total SO_2 emissions for the entire U.S. CEC Report Tables 1.1 and 2.1.

[67] *See Ontario Pollution Report* at 43-50.

[68] *See* http://www.epa.gov/airmarkets/mp/, under the heading Power Sector Modeling Supporting Materials --Run # 12 (IPM Run-CAIR/CAMR/CAVR) and http://www.epa.gov/airmarkets/epa-ipm/index.html#needs and http://cfpub.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard.

[69] *Id.* The data used in this analysis of U.S. EGUs is drawn from EPA's Clean Air Interstate Rule databases. Ontario's technical consultant, M.J. Bradley & Associates (MJB), analyzed the EPA databases and has provided Ontario with a report entitled *Assessment of EPA's Proposed Adoption of an Hourly Emission Rate Test for Determining Applicability Under the New Source Review Program* (December 2005). This report and accompanying spreadsheets provide the data for Tables 2 -5 in these comments. The MJB report , and accompanying spreadsheets are supplied in the CD-ROM accompanying these comments, and is hereinafter cited as "MJB Data".

[70] The data in Tables 2, 3, 4 and 5 has been compiled from the MJB Data and EPA databases, see http://www.epa.gov/airmarkets/mp/ under the heading Power Sector Modeling Supporting Materials --Run # 12;http://www.epa.gov/airmarkets/epa-ipm/index.html#needs; http://cfpub.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard.

[71] *Id.* For Tables 3, 4 and 5, Ontario is aware that U.S. utilities may be installing and operating pollution control equipment that may not be included in the EPA databases and the MJB Data used for those tables. For example, Ontario has been advised by the Pennsylvania Department of Environmental Protection that the EPA databases do not indicate that some Pennsylvania utilities have installed low NOx burners or SCR technology at certain EGUs in order to achieve compliance with the NOx SIP Call.

[72] The data in Tables 4 and 5 has been compiled from the MJB Data and EPA databases, see http://www.epa.gov/airmarkets/mp/, under the heading Power Sector Modeling Supporting Materials --Run # 12; http://www.epa.gov/airmarkets/epa-ipm/index.html#needs; http://cfpub.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard. There are some minor variations between the EPA databases that have been used to calculate emissions of specific states' EGUs that are classified as uncontrolled or poorly controlled in Tables 4 and 5. Ontario recognizes that these variations might have some impact on the emissions calculations for individual states listed in Table 4 and 5, but the total emissions numbers for the states' EGUs and their impact on Ontario would not change materially.

[73] *Id.*

[74] Ontario is aware that U.S. utilities may be installing and operating pollution control equipment that may not included in the EPA databases and the MJB Data used for Table 5.

[75] *See* Ontario Medical Association (OMA), *The Illness Costs of Air Pollution (2005 ICAP)* (June 2005), http://www.oma.org/Health/Smog/index.asp.

[76] 70 Fed. Reg. 25162, 25165-66 (May 12, 2005).

[77] *See* EPA CAIR Technical Support Document database at http://www.epa.gov/interstateairquality/technical.html#final.

[78] *See* NESCAUM comments submitted to EPA (October 24, 2005), regarding federal implementation of CAIR, http://bronze.nescaum.org/committees/attainment/comments051024cair-fip.pdf.

[79] OTC, *OTC States Disappointed with EPA Clean Air Interstate Rule (CAIR) Makes Attainment "Virtually Impossible"*, (March 10, 2005), http://www.otcair.org/press.asp?fview=Press#.

[80] There is currently a judicial challenge pending to implementation of CAIR in the D.C. Circuit. The CAIR litigation is captioned *State of North Carolina et al. v. U.S. EPA*, Docket No. 05-1244 (D.C.Cir.). There are multiple industry challenges to CAIR consolidated in this proceeding, all with the aim of circumscribing the geographic scope and facility coverage of the program.

[81] *See In Re Tennessee Valley Authority*, 2000 EPA App. LEXIS 25, *162 (EPA Env. App. Bd. 2000).

[82] 70 Fed. Reg. 61085, fn 11.

[83] *See Ontario Pollution Report* at 38, 111-113.

[84] *See* EPA Office of the Inspector General, *Evaluation Report: New Source Review Rule Change Harms EPA's Ability to Enforce Against Coal-fired Electric Utilities*, Rep. No. 2004-P-00034 (Sept. 2004)(2004 EPA OIG Report), p. 37, http://www.epa.gov/oig/reports/2004/20040930-2004-P-00034.pdf.

[85] *See* Flatt and Connolly, *Grandfathered Air Pollution Sources and Pollution Control: New Source Review Under the Clean Air Act*, Center for Progressive Regulation, March 2005 (Flatt and Connolly); Joel A. Mintz, *Treading Water: A Preliminary Assessment of EPA Enforcement During the Bush II Administration*, 34 Envt'l. Law Rev. 10933 (Oct. 2004) (Mintz); Barcott, *Changing All the Rules*, New York Times Magazine, April 4, 2004, (Barcott).

[86] *See 2004 EPA OIG Report* at 22-26.

[87] *See* H.R. Rep. No. 294, 95th Cong., 1st Sess. 185 (1977), *reprinted in* 1977 U.S. Code Cong. Admin. News (USCCAN) at 1262 – 1266.

[88] *See* 45 Fed. Reg. 52676, 52697 (Aug. 7, 1980) (Congress intended nonattainment NSR to be used as "an important tool in the drive toward attainment of ambient air quality standards").

[89] *See* 123 Cong. Rec. 27,076 (Aug. 4, 1977)(statement of Rep. Waxman).

[90] *See 2004 EPA OIG Report* at 22-28.

[91] 123 Cong. Rec. 18026 (June 5, 1977).

[92] 42 U.S.C. 7415.

[93] 42 U.S.C. 7426. For a discussion of Sections 115 and 126, *see Appalachian Power v. U.S. EPA*, 249 F.3d 1032, 1041-1044 (D.C. Cir. 2001).

[94] At different times, Section 126 Petitions have been filed with EPA by Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, and Vermont.

[95] *See* USCCAN at 1264-65.

[96] *U.S. v. Ohio Edison Co.*, 276 F.Supp.2d 829, 850 (S.D. Ohio 2003).

[97] *See* USCCAN at 1265.

[98] S. Rep. No. 95-127 at 128 (1977).

[99] Mintz at 10938; *see also* Barcott at 9-11.

[100] *Id.*

[101] The *2004 EPA OIG Report* states that as a result of seven enforcement cases brought by the U.S. Department of Justice against U.S. utility companies, 74 EGU's were required to install emission control devices. See *2004 EPA OIG Report* at 22. Following the *2004 EPA OIG Report*, three other NSR settlements occurred requiring pollution control measures at 29 EGUs. *See* DOJ 2005 Press Releases regarding Dynegy, Ohio Edison and Mirant EGUs, http://www.usdoj.gov/opa/pr/2005/March/05_enrd_100.htm, http://www.usdoj.gov/opa/pr/2005/March/05_enrd_129.htm, http://www.usdoj.gov/opa/pr/2004/September/04_enrd_650.htm.

[102] Mintz at 10938.

[103] *See U.S. v. American Electric Power Service Corp. et al.*, (Civ. Act. Nos. C2-99-1182 and C2-99-1250)(Post-trial brief by *amicus curiae* City of Toronto), August 19, 2005, p. 16.

[104] *See* Case Study #2 to Memorandum from EPA's Adam Kushner to EPA's William Harnett (Aug. 25, 2005), http://www.nrdc.org/media/docs/051013a.pdf.

[105] *See* EPA Petition for Rehearing in *U.S. v. Duke Energy Corp.*, No. 04-1763 at 4.

[106] *See* Southern Environmental Law Center, *et al.*, Petition for a Writ of Certiorari to the U.S. Court of Appeals for the Fourth Circuit, in the case of *Environmental Defense v. Duke Energy Corp.* (2005), p. 9.

[107] *See* GPO, *History of the Clean Air Amendments of 1990* (1993), pp. 6946, 6948, 6964-66.

[108] *See* 42 U.S.C. 7411(a)(4).

[109] 123 Cong. Rec. 26,847 (1977); *see also Chevron USA v. NRDC*, 467 U.S. 837 (1984).

[110] 636 F.2d 323, 400 (D.C. Cir. 1979).

[111] *See also* Flatt and Connolly at 3.

[112] 893 F.2d 901, 908 (7th Cir. 1990).

[113] 893 F.2d at 909, 912.

[114] *U.S. v. Cinergy*, 2005 U.S. Dist. LEXIS 19842, *13 -14 (S.D. Ind. Sept. 8, 2005).

[115] *Id.* at *17-20.

[116] No. 02-1387 (D.C. Cir. June 24, 2005), slip. op. at 23.

[117] *See* 42 U.S.C. 7607(b)(1).

[118] No. 02-1387 at 8, 62, 64.

[119] *See* EPA Petition for Rehearing in *U.S. v. Duke Energy Corp.*, No. 04-1763 (4th Cir.), at 11.

[120] *See* Southern Environmental Law Center, *et al.*, Petition for a Writ of Certiorari to the U.S. Court of Appeals for the Fourth Circuit, in the case of *Environmental Defense v. Duke Energy Corp.* (2005), p. 26-27.

[121] *Id.* at *14-15.*

[122] National Academy for Public Administration, *A Breath of Fresh Air: Reviving the New Source Review Program: Summary Report* (April 2003), pp. 1-3, 25-33; *see also A Breath of Fresh Air: Reviving the New Source Review Program* (April 2003), p. 109-126.

[123] *Id.* at 3.

[124] NESCAUM, *An Analysis of EPA's Changes to the Routine Maintenance, Repair and Replacement Exclusion of the New Source Review Program* (June 2004), pp. ES-1 to ES-4.

[125] Memorandum from EPA's Adam Kushner to EPA's William Harnett, (Aug. 25, 2005)(Kushner memo), pp. 8-9, http://www.nrdc.org/media/docs/051013.pdf .

[126] *See* Memorandum in Support of U.S. Motion for Partial Summary Judgment on Emissions Test (Dec. 17, 2004), in *U.S. v. Cinergy Corp.* (Civ. Action No. IP99-1693).

[127] Kushner memo at 3, Appendix A.

[128] *See* 42 U.S.C. 7479(1).

[129] *See WEPCO* at 904.

[130] *See United States v. Ohio Edison Co.*, 276 F. Supp. 2d 829, 869 (S.D. Ohio 2003); *Puerto Rico Cement*, 889 F.2d 292, 297 (1st Cir. 1989).

[131] *See* Barcott at 3.

[132] Kushner memo at 2, 5.

[133] Mintz at 10938.

[134] *See 2004 OIG Report* at 9; http://www.epa.gov/oig/reports/2004/20040930-2004-P-00034.pdf.

[135] *See* DOJ 2005 press releases regarding NSR settlements with Dynegy, Ohio Edison and Mirant utilities, http://www.usdoj.gov/opa/pr/2005/March/05_enrd_100.htm, http://www.usdoj.gov/opa/pr/2005/March/05_enrd_129.htm, http://www.usdoj.gov/opa/pr/2004/September/04_enrd_650.htm.

[136] Mintz at 10938.

[137] *Id.*